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OFFICE OF STRATEGIC SERVICES

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CENTRAL INDUSTRIAL REGION OF GERMANY

Description

An analysis of the political and social organization, the communications, economic controls, agriculture and food supply, mineral resources, manufacturing and transportation facilities of Central Germany.

4 August 1944

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SUMMARY

The organization of the Central Industrial Region of Germany is highly complicated. Industrially and economically it functions more or less as a unit, despite the fact that it is divided among several major political divisions of Germany. The existing unity of the region is enhanced by its intimate connections with other portions of Germany. It is one of the major manufacturing sections of the country, and occupies a critical and important place in the German economy.

The basic resources on which the industrial complex has been built are potash and brown coal; these, combined with the factors of location and modern techniques, have been most important in the growth of the region. Potash and salt are basic raw materials for the chemical industry. Brown coal is used directly as a fuel, a source of electrical or steam energy, and as a critical raw material for the chemical and synthetic industries. The region has within its borders several of the largest multiple purpose chemical plants in the country, large aircraft and automobile plants, and the one major center of the German optical industry, as well as a host of other significant manufactural developments.

The industrial pattern of the Central Industrial Region is completely interwoven. Factories and industries supply one another with raw materials and finished products, partially manufactured goods proceed from plant to plant, and recently constructed giant multiple purpose plants, particularly in the chemical industry, top the apex of a closely integrated region.

Forest and agricultural resources within the Central Industrial Region help to round out the regional scene. Certain manufacturing industries process agricultural raw materials, and the region has within it the largest portion of Germany's beet-sugar industry. The richest agricultural section of Germany, the Börde, is largely within the area. The Harz Mountain portion of the region supplements the lowlands by contributing forest products and minerals.

The dense network of railroads, highways and canals aid and permit intra-regional movement and also serve as connecting links for extra-regional exchange. The canal system connects the region with nearly all parts of Germany, and, of special significance, with the Ruhr bituminous coal area and the North Sea Ports.

Thus, the region while an economic unit within itself, functions likewise as a segment of Germany's industrial empire, and has access to bulky raw materials from the outside as well as to outside markets.

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I. REGIONAL ANALYSIS

A. Introduction

Central Germany is a region of recent industrial growth, most of which has occurred since the last World War. The industries, though widely diversified, are marked by a high degree of interdependence and, particularly since 1933, have been geared to war production. Administratively, the Central Industrial Region is non-existent, being divided among two Prussian provinces (Hannover and Sachsen), and the states of Anhalt, Thüringen, and Braunschweig. The conflict between industrial unity and administrative disunity will be a major source of difficulty in administering the region after the war.

The problem will be further complicated by the industrial pattern of the region. Large-scale modern industries have been superimposed upon an area of small factories and crafts without completely displacing them. During the early 1930's, many of the smaller plants, unable to weather the depression, were forced to close down. The Nazi regime first rode into power as the savior of small industries. Once in, more and more emphasis was placed on the "rationalization" of industry -- the combining of smaller plants into larger, more highly mechanized units where operating costs were at a minimum and production per man at a maximum. As a result, small industries declined at a rate more rapid than before, accompanied by increasing proletarianization of the workers. More recently, bombings have again tended to decentralize industries. The extent of both consolidation and decentralization is not accurately known.

Roughly speaking the region extends from the Weser to the Elbe River and from the Mittelland Canal on the north to the mountains of Thüringen on the south, and includes an area of about 531,000 square miles or 7 percent of the total area of Germany (Map No. 3263). The area included in the region as treated here represents a compromise, being based primarily upon industrial interrelations but in part upon the boundaries of provinces, states (Länder), districts (Regierungsbezirke), and counties (Kreise) in order to make possible the use of existing statistical data. Where official statistics are assembled by other administrative units, the nearest areal equivalent has been used.

B. Administration and Administrative Problems

The Central Industrial Region includes all of Anhalt, most of Braunschweig, northern and eastern Thüringen, the southern and central parts of Provinz Sachsen, and a small area in southern Provinz Hannover. These political units or parts of units are not in themselves continuous. Anhalt is divided into two larger parts separated by Provinz Sachsen; Provinz Sachsen completely surrounds Anhalt but parts of Sachsen are separated from the main body of the province and are surrounded by Thüringen; and northern and southern Thüringen are separated from each other by Provinz Sachsen. In the northwest, parts of Braunschweig are cut off from the rest of the state by the provinces of Sachsen and Hannover (Map No. 3222).

Recent boundary changes indicate that the complex current setup is not satisfactory even for German administrative procedure. In 1941 the area of Braunschweig was enlarged to include all of the industrial interests of the Hermann Göring combine and on 1 May 1944 two new provinces, Magdeburg and Halle-Merseburg, were carved out of Provinz Sachsen. 1/ Numerous smaller changes in boundaries have been made during recent years. All represent a simplification of the political pattern and a trend toward a more nearly functional realignment.

Economic and Party organization further complicates the administration of the region. Party Gaue may cut across political boundaries or combine or divide political units. Within the Central Industrial Region, Provinz Sachsen and Anhalt are combined for the administration of pension insurance; for financial administration the region is divided into two districts only, Hannover and Mitteldeutschland; for economic administration there are three districts; and for mining, two. No two of these administrative units coincide in their entirety. Other administrations, such as public health, conform with political units of the region.

C. The Industrial Development of Central Germany

Before World War I, Central Germany was not an industrial region. The nearly treeless zone with fertile dark brown soil, extending in an arc around the Harz Mountains from Braunschweig

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1/ Since the division of the province is too recent to be shown on maps or to be used in literature on the region, the old "Provinz Sachsen" will be used throughout this study as a political unit.

through Central Germany to Leipzig in Land Sachsen has always been the agricultural "heartland" of Germany, and the major producing area for wheat and sugar beets. The isolated mountain block of the Harz and the Thuringian mountains farther south contained minor ore deposits and wood in abundance, which have supported local industries and crafts since the Middle Ages. Salt mining around Stassfurt and Halle is another industry of long standing. The exploitation of the potash and brown coal deposits, however, did not assume economic importance until after the middle of the last century and did not become a major factor in regional integration until after 1918.

By the 1920's a definite regional consciousness had begun to emerge, chiefly on the basis of industries using brown coal and the various types of salts mined locally. Brown coal became the regional source of power as well as a raw material for the synthetics industry, while sodium chloride and potash salts, in particular, supported an increasingly important group of chemical industries.

Agriculture as well as the older, small-scale industries of the past persisted within the Central Industrial Region. Sugar beets were the major cash crop. Consequently the limitation on sugar beet production imposed by the Chadborne Agreement of 1931 was a serious economic blow. To compensate for this, the region set out to attract industries, largely by providing cheap land and tax exemption or reduction for limited periods.

When the Nazis came into power in 1933, they were able to capitalize on the industrial momentum already in progress for the development of war industries. This included a comprehensive program for the exploitation of local ores in order to make the nation more nearly self sufficient in raw materials for manufacturing. Within the Central Industrial Region, surveys were made of ore deposits and factories were built to utilize local low-grade ores. The newly established or expanded factories were stimulated by government subsidy. All these steps were directed towards a wartime economy and were closely interrelated in an effort to create a self-sustaining industrial complex within the center of the country, removed from enemy attack. To further these ends and to promote industrial efficiency, many small industries were closed down or consolidated into larger combines.

The use of brown coal as a fuel is the common denominator for most of the industries of the Central Industrial Region. In sugar refineries and canneries it is used directly as fuel and in the metallurgical and chemical industries indirectly in the form of steam or electricity. When converted into synthetic motor fuel in the chemical plants of the region, it becomes a source of power for transportation as well. The salt mines support industries that provide caustic soda for the manufacture of synthetic fibers, paper, and soap, and for the refining of aluminum; chlorine for bleaches and poison gases; potash for fertilizer and for manufacturing glass and textiles. The extraction of nitrogen from the air requires large amounts of brown coal in the form of electricity and the nitrogen compounds produced (ammonia, nitric acid, and various nitrates) are used in the manufacture of products ranging from explosives to fertilizer. Sulphuric acid, another vital wartime product, is a by-product of copper smelting, and slag from the blast furnaces is a local source of phosphorous for fertilizer. These are only a few of the industrial interrelations occurring within the Central Industrial Region.

The temporary or permanent operation of any individual industry to provide vital needs of the people, or as a source of income or employment, must be contingent upon detailed knowledge of the industry itself and considered in the light of its role in the industrial complex of Central Germany. Industries most essential for carrying on a modern war, such as manufacture of sulphuric acid or of synthetic nitrogen may be equally necessary for peacetime purposes and a stoppage of production might lead to industrial chaos. On the other hand, conversion works both ways; an industry converted to peacetime production is capable of again manufacturing materiel of war. Revival of small dispersed industries that have been closed as a part of the program of consolidation raises problems of their economic efficiency, the degree of consolidation that has taken place, and the extent to which their equipment could be salvaged or replaced within a short time. These problems bear very little relation to the pre-war production or productive capacity, and can be appreciated only after a detailed analysis of the state of individual industries at the latest possible date before the cessation of hostilities.

D. Raw Materials as a Basis for Industrial Development

The industrial development of Central Germany is based chiefly upon its abundant resources of brown coal and salts, including sodium, potassium, and magnesium salts. Clay, sand, gravel, and building stones are present in quantities sufficient for the normal needs of the region. Other mineral resources are either lacking or present in quantities too small to support large-scale industries under a free economy, thus making the region dependent upon outside areas for essential raw materials.

Economically exploitable salt deposits surround the Harz Mountains on the north, east, and south, and are sufficient to supply not only the chemical industries of the Central Industrial Region but also the entire world for generations to come.

Brown coal deposits are even more widely spread. The richest extend in a northwest-southeast direction from Braunschweig to Halle and from there into Land Sachsen. Because of its low calorific qualities and high moisture content, it is not economical to ship brown coal over great distances. Consequently industries using brown coal directly, either as a fuel or a raw material, are usually located near the mines. If the coal is converted into briquettes or electricity, it can be transported or transmitted over greater distance, but the briquettes are pressed and the electricity is generated near the mines. For these reasons, brown coal exercises a centralizing effect on industry.

The supplies of metallic ores of the region are far less adequate, the most important being the iron ore deposits extending from the northern margin of the Harz to beyond Braunschweig in the north, and the copper ores of the Harz and its eastern foreland. Although they comprise sources of these metals that are important to Germany during the war, neither ore has a metallic content high enough to enable it to compete with higher-grade imported ores. The Harz Mountains also contain other metallic ores such as lead and zinc that are vital to Germany's war effort but which could not be exploited with profit in a free economy.

The most serious industrial handicap of Central Germany is the almost complete lack of bituminous coal and natural petroleum. Brown coal cannot be used in blast furnaces and in a number of other important industries. Consequently, all the bituminous coal needed must be imported from the Ruhr Region or Silesia in the form of coal or coke. To a large extent, the lack of natural petroleum is balanced by the regional manufacture of synthetic oil from brown coal, but the synthetic product is so expensive to manufacture that it could not compete economically with natural oil after the war.

E. Commerce and Transportation

Excellent rail and water transportation has played an important role in the industrial development of Central Germany. Main east-west and north-south railroad line focus on the region. The Weser and Elbe provide north-south water routes, and the Mittelland Canal, connecting the two rivers, gives ready access to the waterways of the Rhine-Ruhr Region and the Berlin Area.

Before the war, the railroads and waterways of the Central Industrial Region carried a high proportion of the total rail and water traffic of Germany. In 1937 seven times as much traffic was carried by rail as by water. Since the outbreak of war, water traffic of Germany has increased some 20 percent and it is probable that the increase within the Central Industrial Region exceeded the national average.

The two types of traffic differ radically. For intra-regional trade -- the carrying of local raw material to the factories and finished products to markets within the region -- railroads are of far greater importance than waterways. Of the total regional railroad traffic, 38 percent is intra-regional, 27 percent exports, 23 percent imports, and only 12 percent goods in transit. By contrast, only 2 percent of the water-borne traffic is intra-regional. Exports account for 27+ percent of the total, and the remaining 70+ percent is about evenly divided between imports and goods in transit.

The imports and exports of the Central Industrial Region reflect its raw material surplusses and deficiencies and the regions upon which it depends for raw materials and markets. By far the most important import is bituminous coal and bituminous coal coke (10,300,000 MT), which comes largely from the Rhine-Ruhr Region. Second in rank is brown coal, briquettes, and brown coal coke (6,500,000 MT), which however amounts to only a half of the exports of these same commodities from the region. A large proportion of the brown coal imports came from that section of the central German brown coal field that extends into Land Sachsen and is carried to factories near by but within the limits of the Central Industrial Region.

The exports of the Central Industrial Region consist chiefly of brown coal, briquettes, potash fertilizer, and potash. The major markets for brown coal are the industrial areas of Land Sachsen (including Leipzig and Chemnitz), Brandenburg, and Berlin. The potash market is much larger, including not only much of Germany but foreign countries as well.

The chief markets for exports from the Central Industrial Region as a whole are Land Sachsen, the Berlin Area, Nordbayern, and Hamburg, the last being by far the most important for water-borne traffic. The region, however, is its own best market. The most important markets for the Hannover district are Magdeburg and Merseburg; for Magdeburg are Merseburg and Hannover; for Merseburg are Magdeburg and Thüringen; and for Thüringen are Land Sachsen, Merseburg, and Nordbayern.

F. Natural Characteristics

1. Terrain. Although historical and political development are in part responsible for the complex administrative differences in Central Germany, the natural environment has contributed its share in creating intra-regional differences. The Central Industrial Region cuts across two major terrain regions of Germany -- the Great Northern Lowlands and the Northern Hill Lands; it surrounds the isolated mountain block of the Harz, includes the entire Thuringian Basin, and extends to the low mountains of Thüringen (Map No. 3210).

That portion of the Northern Lowlands lying within the Central Industrial Region is more rolling than other parts of the Lowlands. Between these rather widely-spaced groups of low hills there are, however, extensive marshy depressions that were avoided by the earliest settlers of the region. A lowland trough, cutting across the region from east to west, is today the route of the Mittelland Canal.

The soils of the Lowlands are characteristically sandy and of low productivity. Most of the agricultural lands can be used only for such crops as rye and potatoes. Consequently the plains are poor, with a tendency to follow the agricultural pattern of eastern Germany.

Between the Lowlands and the Hill Lands is a transitional zone known as the Börde, with elevations somewhat higher than the land to the north and with more conspicuous hills rising to heights of about 650 feet. The Börde crosses the Central Industrial Region from west of Braunschweig to Magdeburg. In the west it narrows almost to a point but on the east and southeast broadens out and curves around the hills surrounding the Harz.

The Börde is the largest continuous area of fertile soil in Germany, particularly famed for its high yields of sugar beets and wheat. Agriculture is intensive, scientifically managed, and highly industrialized. Relatively large farms are economically closely connected with the sugar refineries in neighboring cities. The basis of the agricultural development in the Börde is the soil, which is fine-textured, permeable, dark brown to black in color, and of exceptional productivity. On a map of land values in Germany, the limits of the Börde stand out sharply because they coincide identically with the area of highest farm land valuation.

Because the Börde was a natural grassland it attracted settlers and was one of the earliest areas of agricultural settlement in Germany. Dense population, combined with well-drained land, also made the area a route of overland transport, first by road and later by railroads. Braunschweig on the Weser and Magdeburg on the Elbe occupy particularly favored positions because they are surrounded by exceptionally fertile farm land and are located at points where the east-west land route intersects north-south lines of water transportation.

South and west of the Börde are the Northern Hill Lands, which completely surround the Harz Mountains and include the Thuringian Basin. They are marked by greater diversity of surface and soils than the land farther north. Directly south of the Harz foothills is a belt of good farm land with gentle slopes, drained by the Helme River. A similar but narrower belt borders the mountains of Thüringen. Between the two is a zone of poorer farm land, much broken by hills and with a tendency to be droughty because of its porous soils and underlying rock. Particularly along the river valleys, however, there are occasional isolated areas with exceptionally fertile soils resembling those of the Börde -- as around Erfurt and Weimar. The farms of the Hill Lands are smaller and more diversified than those of the Börde.

Three major routes of transportation cross the Hill Lands from west to east and focus on the industrial cities along the eastern margin of the region. Two of these routes skirt the northern and southern margins of the Harz Mountains. The third parallels the northern edge of the Thüringer Wald, passing through Eisenach, Gotha, Erfurt, Weimar, and Naumburg.

The Harz Mountains rise abruptly above the surrounding foothills to elevations of nearly 4,000 feet. The upper surface is plateau-like, with elevations increasing from east to west. The surface is interrupted by a few roundtopped hills and cut by steep-sided narrow valleys of great natural beauty. Because of prevailingly poor soils, a cool moist climate with long winters, and a dense forest cover, the population is scant. Agriculture is limited to a few isolated areas chiefly in the east. No major lines of transportation cross the region. The beauty of the scenery, however, has made the Harz a favorite resort for tourists, particularly from the industrial cities near by.

Within the Central Industrial Region, the Elbe River and its larger southern tributaries have always provided a natural route of communication between North Germany and the lands to the south and southeast. Modern railroads and highways follow the same route as did the people who migrated into Germany in the past.

2. Climate. The climate of the Central Industrial Region, one of the most equable in all Germany, is characterized by mild temperatures, frequent but light precipitation, high relative humidity, and much cloud and fog. Essentially similar climatic conditions prevail throughout the Northern German Lowlands and the Hill Lands, but the Harz, with its higher elevation, has lower temperatures, heavier rainfall, more snow, cloud, and fog, and higher relative humidity. For comparative purposes, detailed climatic data are given for Magdeburg at the margin of the Lowlands, Erfurt in the Hill Lands, and the Brocken in the Harz Mountains (Table I and Map No. A3043).

In general temperature varies more with altitude than latitude. Magdeburg, with an elevation of 190 feet, is consistently a little warmer during all months of the year than Erfurt 80 miles to the south, with an elevation of 715 feet. The Brocken, at 3,773 feet elevation, has monthly temperatures averaging from 8 to 12 degrees lower than those of Magdeburg and Erfurt.

Throughout the lower lands, temperatures rarely reach 100° F. in summer, or drop below freezing for more than fifteen or twenty days a month in winter. Frosts are neither severe nor continuous. The last spring frost normally occurs between 21 April and 5 May, and the first autumn frost between 30 September and 14 October. During an average winter, ice forms on the Elbe at Magdeburg for about thirty days, making the use of ice breakers necessary from the middle of December to the middle of February, in order to maintain river traffic. Ice aloft is a common obstacle to air transport in winter.

In spite of frequent rains, the average rainfall does not exceed twenty to twenty-four inches a year, except in the Harz. The precipitation is fairly evenly distributed throughout the year, with slightly heavier rainfall during June and July, the months having the largest number of thunderstorms. Because the relative humidity is high and temperatures moderate, the rainfall is usually adequate for agriculture.

At the lower elevations, snow falls on an average of thirty-seven days a year but seldom remains on the ground more than twenty-five or thirty days during the winter. This, however, is sufficient to make necessary the use of snowplows on highways and city streets at intervals from December through February. In the Harz snowfalls are more frequent, begin earlier in the fall, and continue later into the spring. Snow covers the ground on an average of ninety-two days annually.

Because of the distribution of precipitation throughout the year, floods are not normally a serious hazard in the Central German Region except along rivers rising in the Harz or after winters with heavier than average snow and colder temperatures. Floods are most frequent in the lowlands to the north, though the Elbe has been known to overflow its banks after unusually severe winters.

Under average conditions, the climate of Central Germany presents few difficulties other than occasional freezing of water pipes and automobile radiators, delays in river traffic, and danger to air and land transportation resulting from fog and snow. Weather conditions, however, vary greatly from year to year and few years have average conditions. Late frosts have been known to ruin the winter wheat crops; in 1942 a drought reduced the yield of all root crops, and during the severe winter of 1942, a large proportion of the fruit trees of the region were winter-killed. Unfavorable climatic conditions that would seriously reduce crop yields, though not usual, may be expected to occur during any year.

3. Vegetation. From the standpoint of natural vegetation the lower lands of the Central German Industrial Region are transitional in character between the northern German (evergreen) pine forest and the western German deciduous

broadleaf forest. In the Harz, above the mixed woods of pine, beech, and hornbeam, is a dense cover of evergreen spruce between an altitude of 1,500 feet and the timber line, which here lies at 3,240 feet.

The region as a whole is about 25 percent forest-covered, a figure which approximates the national average. Most of the forests, however, are concentrated in the Harz area and northern Thüringen. The intensively cultivated belt of dark brown loess soils between Braunschweig and Magdeburg is natural grassland, bearing only a 4-12 percent tree cover.

G. Population

Between 1933 and 1939, the population of the region as a whole increased from 5,058,000 to 5,500,000, a large part of the increase coming from immigration rather than from higher birth rate. Prior to 1933 the immigrants into the region were largely farm workers; since that date the population of cities has grown proportionally more rapidly than that of the countryside. The area of densest concentration of population lies to the north and east of the Harz Mountains and corresponds closely with the areas of most fertile soil and of greatest industrial development. In other parts of the region population is fairly evenly distributed, except for the Harz Mountains where the population is markedly lower (Map No. A3059).

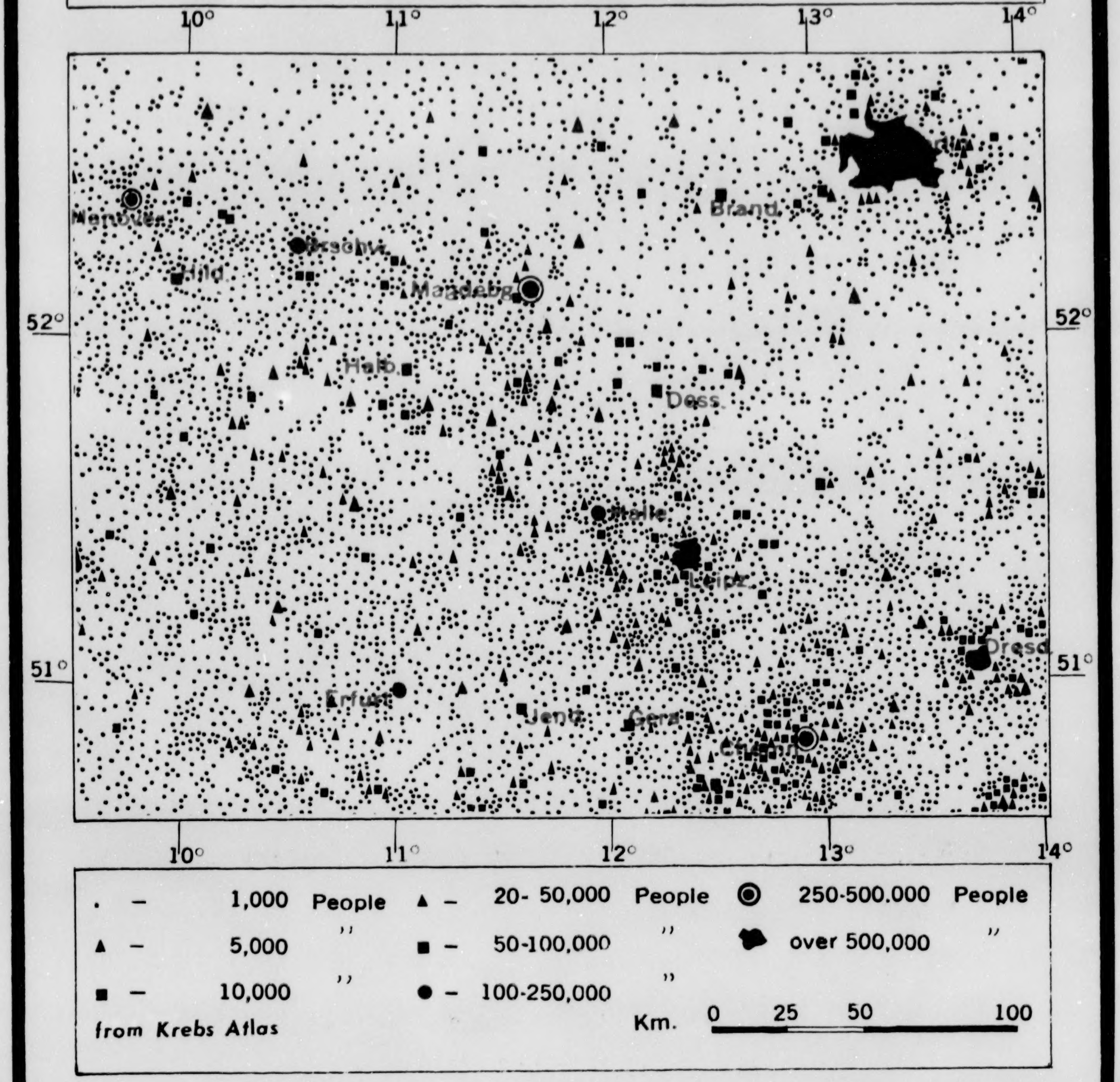
In relation to its industrial importance, the region contains notably few large cities. Magdeburg, the largest city of the region, had a population of 336,838 in 1939, and ranked twentieth among German cities. The only other large cities of the region are Halle (220,092), Braunschweig (196,068), Erfurt (166,615), and Dessau (119,099). All are centers of large-scale modern industries. Thüringen in the south has no large cities but a string of smaller urban centers, with populations of between 50,000 and 100,000, follows the east-west route of transport and includes Eisenach, Gotha, Weimar, Jena, and Gera -- all old cities with long histories of specialized and skilled industries and crafts.

In Anhalt and Provinz Sachsen, the low degree of urbanization reflects the recent growth of modern industry; in Thüringen the large number of small cities has its basis in history. Thüringen, in its present form, was created in 1919 by the union of several smaller states, each of which had its own urban centers.

The occupational distribution of population in Central Germany has changed during the last decade. In 1933 agricultural workers amounted to about 22 percent of the total number of employed persons, but by 1938 the proportion had dropped to 13 percent. During the same period industrial workers had increased from 50 to 60 percent. The number engaged in all other occupations changed little, declining from 28 to 27 percent. The disproportionate decrease in farm workers was sufficient to cause national concern since the region normally produced food crops well in excess of its own requirements and exported wheat, sugar, and vegetables to other parts of Germany. Since the outbreak of war, foreign agricultural labor has been replacing the declining local supply of farm workers.

Racially the Central Industrial Region is lacking in unity. It straddles the boundary between the High and Low Germans, which follows roughly an east-west line drawn through Göttingen. North of the line, Low German is the language of the people except in the larger cities. To the south High German is spoken by the majority. Similarly, the region is transitional between Germanic and Slavic peoples; the Slavic element being strongest in the Elbe

DISTRIBUTION OF POPULATION IN CENTRAL GERMANY


10°
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Brand.
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Leipz.
Erfurt
Jena
Gera
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• – 1,000 People
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▲ – 20- 50,000 People
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● – 100-250,000 ”
◉ 250-500.000 People
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from Krebs Atlas

NO. A-3059
7 FEB. 1944

Valley in the southeast and the Germanic in the northwest around Braunschweig.

The region is predominantly Protestant and in the sixteenth century was the cradle of the Reformation. Martin Luther was born and died at Eisleben, and spent much of his life within the region. Practically all of the region was converted to Protestantism at an early date with the exception of a few areas such as Eichsfeld, in southwestern Provinz Sachsen, and Erfurt, which remained under the jurisdiction of the Bishop of Mainz after other religious principalities had been dissolved.

Politically, the Central Industrial Region has been unpredictable, with a tendency to extremism -- either left or right. In the more highly industrialized areas voting and party affiliations have been highly sensitive to the unemployment situation. In the depression year of 1923, Halle and Magdeburg were centers of radicalism and Thüringen even admitted Communists to the cabinet. In the more prosperous year of 1928, extreme radicalism became less popular even in the expressedly radical parties. Nazism registered its first major success in 1932, when unemployment was at its peak and the failure of radicalism to restore prosperity had become evident.. Thüringen was the second state of Germany to fall to the Nazis, due largely to the fact that the small industries of the Thuringian cities were less able to weather the depression than were the larger combines in orther parts of the Central Industrial Region. But in no part of the region did the Nazis poll as much as 50 percent of the votes in major elections prior to 1933.

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Table 1. CENTRAL GERMAN INDUSTRIAL REGION CLIMATIC RECORDS 1/

Weather Stations	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Yr.
A. Mean Temperature (°F.)													
Magdeburg (190')	32.2	33.8	39.6	47.1	56.8	62.2	65.1	63.3	57.4	48.4	39.4	34.5	48.4
Erfurt (715')	30.0	32.2	38.1	45.3	54.5	59.8	62.6	61.2	55.2	46.8	38.9	32.9	46.4
Brocken (3773')	24.1	24.1	27.1	32.9	42.0	47.1	50.4	49.1	45.0	37.8	30.2	25.5	36.3
B. Mean Maximum Temperature (°F.)													
Magdeburg	36.7	39.4	47.1	56.1	66.7	72.0	74.9	73.4	67.3	55.9	44.6	38.5	56.1
Erfurt	35.2	38.3	46.0	54.7	64.6	69.6	72.9	71.6	65.1	54.3	43.2	37.4	54.3
Brocken	27.7	27.9	31.3	37.8	48.0	53.2	56.3	71.2	50.2	42.1	34.0	29.1	41.0
C. Mean Minimum Temperature (°F.)													
Magdeburg	27.5	28.6	30.9	38.8	46.8	52.3	55.6	54.7	49.3	42.1	34.7	30.4	41.2
Erfurt	24.0	25.5	30.6	36.0	43.7	48.9	52.5	51.6	46.4	39.9	32.4	27.7	38.3
Brocken	19.2	19.4	22.6	27.7	36.3	50.5	45.0	44.2	40.5	34.0	26.2	21.7	31.5
D. Absolute Maximum Temperature (°F.)													
Magdeburg	57.7	64.0	77.0	85.1	96.6	95.5	99.5	97.7	95.0	82.8	69.6	58.5	99.5
Erfurt	56.3	67.6	74.5	84.0	93.7	94.1	95.9	97.5	92.3	78.8	68.2	61.0	97.5
Brocken	50.5	57.9	58.6	68.7	76.1	76.3	80.4	77.4	75.9	67.8	59.0	50.9	80.4

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Table 1 (cont'd)

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Weather Stations	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Yr.
E. Absolute Minimum Temperature (oF.)													
Magdeburg	-12.6	-14.3	0.9	20.7	29.5	32.9	42.8	39.4	32.5	17.1	5.5	-2.6	-14.3
Erfurt	-17.5	-22.7	-8.1	17.4	26.2	32.9	37.6	37.4	27.7	14.4	-3.5	-19.3	-22.7
Brocken	-12.3	-14.8	0.9	6.6	19.0	26.6	32.4	32.2	28.0	12.2	2.3	-5.1	-14.8
F. Relative Humidity (%)													
Magdeburg	85	82	77	70	65	66	69	71	75	81	85	86	76
Erfurt	86	83	78	72	71	72	74	75	79	83	85	86	79
Brocken	90	90	92	89	83	84	86	88	89	90	90	93	89
G. Mean Precipitation (Inches)													
Magdeburg	1.3	1.2	1.4	1.5	1.7	2.2	2.6	2.0	1.5	1.7	1.4	1.5	19.8
Erfurt	1.1	1.0	1.2	1.6	2.1	2.6	2.8	2.2	1.7	1.7	1.4	1.2	20.4
Brocken	5.9	6.9	5.7	4.3	3.9	5.6	6.3	5.9	4.6	4.1	5.1	6.4	64.0
H. Maximum Precipitation (Inches)													
Magdeburg	3.3	2.5	3.1	3.1	5.7	3.9	7.8	5.8	4.2	4.3	3.4	3.0	32.7
Erfurt	2.6	1.7	3.0	3.5	5.3	5.1	6.9	4.7	5.9	4.3	3.4	2.4	26.4
I. Minimum Precipitation (Inches)													
Magdeburg	0.6	0.2	0.3	0.2	0.2	0.4	0.2	0.1	0.4	0.1	0.1	0.3	11.9
Erfurt	0.4	0.1	0.1	0.5	0.5	0.6	0.7	0.7	0.4	0.1	0.1	0.3	12.6

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Table 1 (cont'd)

Weather Stations	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Yr.
J. Number of Days with Thunderstorms													
Magdeburg	0.1	0.1	0.4	1.2	3.7	4.6	5.4	3.8	1.5	0.2	0.1	0.1	21.2
Erfurt	0.1	0.1	0.4	1.3	4.6	4.9	5.6	4.9	1.7	0.3	0.0	0.1	24.0
Brocken	0.0	0.0	0.5	1.1	4.1	4.8	4.8	4.2	1.5	0.2		0.1	21.3
K. Mean Number of Days with Snowfall													
Magdeburg	9.0	7.7	6.4	2.6	0.2	---	---	---	---	0.4	3.3	6.9	36.5
Erfurt	8.8	7.7	6.8	2.9	0.6	---	---	---	---	0.6	3.0	6.1	36.5
Brocken	17.6	15.2	15.5	13.1	5.9	1.5	---	---	1.1	6.6	11.6	17.6	105.7
L. Mean Cloud Cover (0-10)													
Magdeburg	7.1	6.9	6.6	6.1	5.7	5.9	6.2	5.9	5.6	6.6	7.2	7.4	6.4
Erfurt	7.3	7.1	6.6	6.3	5.9	6.1	6.1	5.9	5.8	6.8	7.5	7.5	6.6
Brocken	7.7	7.7	7.8	7.4	6.9	7.1	7.3	7.3	7.2	7.6	9.0	8.2	7.5
M. Mean Number of Clear Days													
Magdeburg	2.8	2.8	3.1	3.6	4.3	3.6	2.7	3.3	4.4	2.4	1.9	1.9	36.8
Erfurt	2.5	2.2	3.2	3.7	4.0	3.6	3.1	3.7	4.7	2.9	1.5	1.7	36.8
Brocken	3.7	2.9	2.3	2.4	2.5	1.9	1.7	1.7	3.5	2.7	2.7	2.3	30.3
N. Mean Number of Cloudy Days													
Magdeburg	15.3	12.8	12.3	9.4	7.4	7.9	8.1	7.2	7.7	11.9	14.7	15.8	130.5
Erfurt	16.1	13.7	12.7	10.0	9.1	8.8	8.7	8.5	8.7	12.8	15.7	16.4	141.2
Brocken	20.1	18.0	19.0	16.1	13.4	13.8	15.3	15.3	15.9	19.1	19.8	21.4	207.2

1/ Source: Germany, Reichsamt fur Wetterdienst. Klimalcunde des Deutschen Reich, Band II, Tabellen, Berlin, 1939. Length of records vary from 40 to 80 years.

II. POLITICAL AND SOCIAL ORGANIZATION 1/

A. Administration of Region

Traditionally, there was a distinction between the branches of administration where the Reich had its own executive machinery and others where the states (Länder) had their administrative apparatus. Since 1934 most of the former states' administration has been taken over by the Reich ("verreichlicht"), especially the interior administration. Thus, the bulk of the administration is now under the direction of the Reich authorities, its ministries, or equivalent agencies.

The regional administration under the jurisdiction of the German states reflected the diversity of historical forms of German territorial units. In Central Germany with its multitude of small states, the administrative picture was particularlry confusing. This diversity was the result of a series of historical accidents and not of any genuine necessity. It could be tolerated so long as the region was predominantly agricultural. With the steadily increasing industrialization of the region a reform became imperative.

The nucleus of Provinz Sachsen, the Altmark, has been part of Brandenburg-Prussia since 1415. The peace treaty of Westphalia in 1648 added the principality of Halberstadt and the counties of Aschersleben and Hohenstein. Moreover,

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1/ Additional information is available in Civil Affairs Handbook, Germany, Section 2T, Government and Administration, Economic Controls in Nazi Germany, and Civil Affairs Handbook, Germany, Section 2, Government and Administration.

Brandenburg received a claim to the duchy of Magdeburg and the Saalkreis. They were actually incorporated into Brandenburg in 1680 after the death of their last Saxonian administrator. In 1714 Prussia was invested with the county of Stolberg-Wernigerode as a fief. Among the holdings of Magdeburg, two-fifths of a mortgage on the county of Mansfeld were transferred to Prussia. The remaining three-fifths were acquired from Saxony in 1815. The treaty (Reichsdeputationshauptschluss) of 1803 brought Prussia the principality of Erfurt, the convent (Stift) of Quedlinburg, and the free cities of Nordhausen and Mühlhausen. The Congress of Vienna in 1815 made still more decisive changes through the partition of Saxony: Prussia received the counties of Schleusingen, Ziegenrück, Torgau, parts of the county of Naumburg, the remaining three-fifths of the county of Mansfeld, major parts of the convents of Merseburg and Naumburg-Zeitz, and the former principality of Querfurt. Since 1815 the three centers of administration for Provinz Sachsen have been in Merseburg, Magdeburg, and Erfurt. Hannover became part of Prussia after the war of 1866.

A decree concerning the reorganization of the Province Sachsen of 1 April 1944 [1] has changed the regional structure of the Central Industrial Region. The Prussian Province

[1] Reichsgesetzblatt, Part I, 29 April 1944.

Sachsen has been divided into three parts: Government District Magdeburg has been made a province (Province Magdeburg), with seat at Magdeburg. Government District Merseburg has likewise been made a province (Province Halle-Merseburg), with seat at Merseburg. Government District Erfurt has been put under the administration of the Reich Governor of Thüringen, who acts as Provincial President. As far as the "self-government" of the former Province Sachsen is concerned, Sachsen remains a unit "for the duration" headed by the Provincial President of Merseburg. Likewise, certain tasks of the former Provincial President of Sachsen, such as in the field of water administration, remain centralized under the Provincial President of Magdeburg.

The duchy of Anhalt was divided from 1603 to 1863 into four independent principalities, Dessau, Bernburg, Köthen, and Zerbst, the forerunners of the present counties. Braunschweig's territorial history does not record any important changes. Until 1920 Thüringen consisted of over 90 small territorial units, grouped according to the two main branches of the dynasty of Wettin into Albertinic and Ernestinic sections. The number of states in Central Germany was reduced from seventeen in 1815 to twelve in 1866, and finally to five in 1920 by the unification of Land Thüringen.

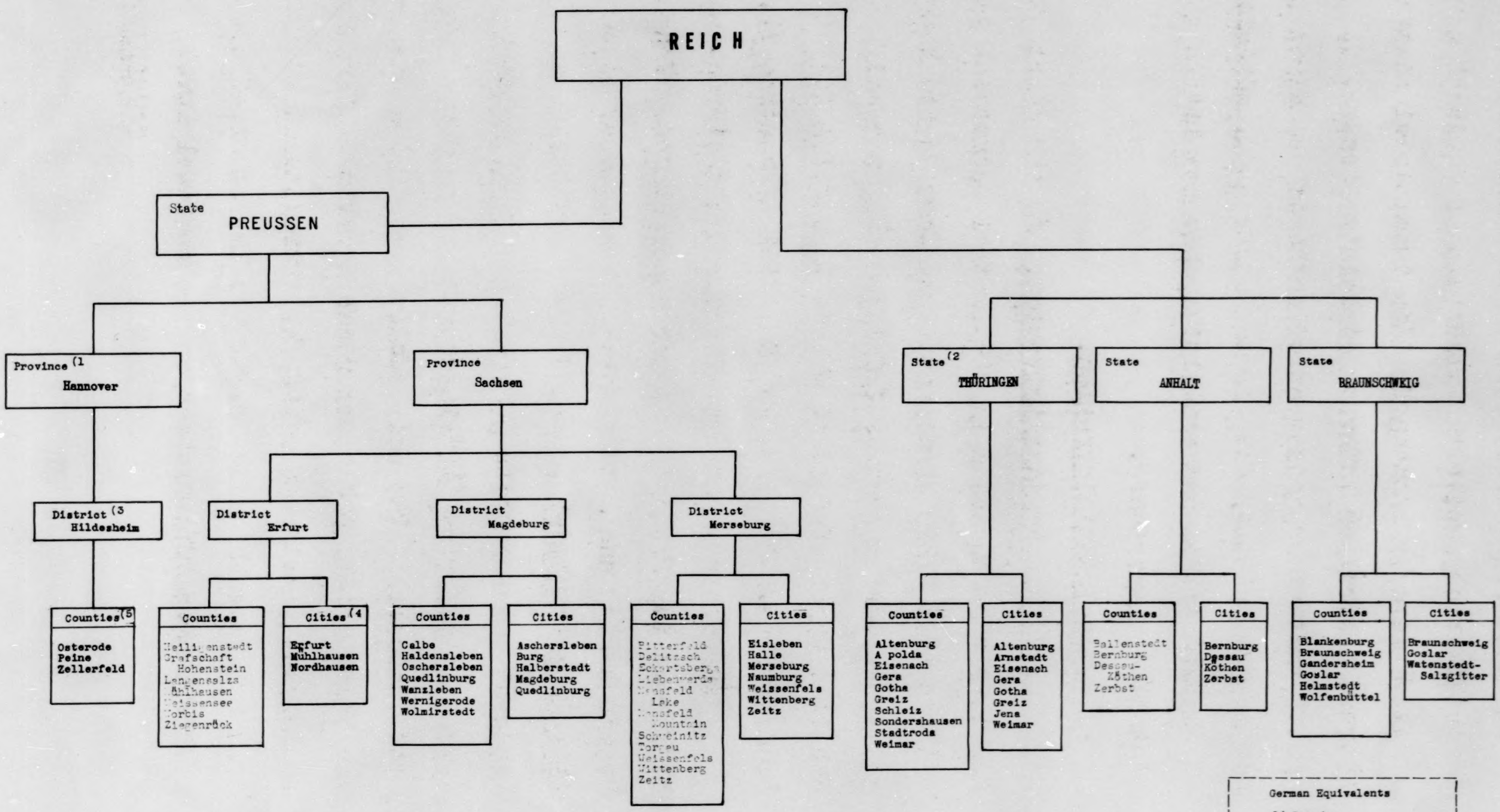
The Nazi regime concentrated on the control of central administration, while the structure of regional government remained largely unchanged. The traditional distinction between general or interior administration, e.g., general administrative organization of authorities, civil service, and police matters, and, on the other hand, administration of special fields and activities, has now little more than historical importance.

1. General Administration.

a. System of Administration. As the chart shows, the territory included in the Central Industrial Region belongs to two Prussian provinces, Sachsen and Hannover, and three German states, Thüringen, Braunschweig, and Anhalt (Chart of Central German Industrial Region Political Subdivisions. See also Map No. 3222 in Section I).

The present pattern of general administration is different for Preussen and the other states. Thüringen, Braunschweig, and Anhalt, although headed by Reich Governors (Reichsstatthalter) retained their executive machinery consisting of a state government (Staatsregierung) with several ministries (Thüringen and Braunschweig) or departments (Anhalt). The only subdivisions below them are on the local level, urban and rural counties. The provinces in Preussen, although nominally divisions of the state, are practically on the same level with the other states. They, however, have subdivisions on the regional level, Government

CENTRAL GERMAN INDUSTRIAL REGION
POLITICAL SUBDIVISIONS


REICH
State PREUSSEN
Province (1 Hannover
Province Sachsen
District (3 Hildesheim
Counties (5
Osterode
Peine
Zellerfeld
District Erfurt
Counties
Heiligenstadt
Grafschaft Hohenstein
Langensalza
Mühlhausen
Weissensee
Worbis
Ziegenrück
Cities (4
Erfurt
Mühlhausen
Nordhausen
District Magdeburg
Counties
Calbe
Haldensleben
Oschersleben
Quedlinburg
Wanzleben
Wernigerode
Wolmirstedt
Cities
Aschersleben
Burg
Halberstadt
Magdeburg
Quedlinburg
District Merseburg
Counties
Bitterfeld
Delitzsch
Eckartsberga
Liebenwerda
Mansfeld Lake
Mansfeld Mountain
Schweinitz
Torgau
Weissenfels
Wittenberg
Zeitz
Cities
Eisleben
Halle
Merseburg
Naumburg
Weissenfels
Wittenberg
Zeitz
State (2 THÜRINGEN
Counties
Altenburg
A polda
Eisenach
Gera
Gotha
Greiz
Schleiz
Sondershausen
Stadtroda
Weimar
Cities
Altenburg
Arnstadt
Eisenach
Gera
Gotha
Greiz
Jena
Weimar
State ANHALT
Counties
Ballenstedt
Bernburg
Dessau-Köthen
Zerbst
Cities
Bernburg
Dessau
Köthen
Zerbst
State BRAUNSCHWEIG
Counties
Blankenburg
Braunschweig
Gandersheim
Goslar
Helmstedt
Wolfenbüttel
Cities
Braunschweig
Goslar
Watenstedt-Salzgitter

German Equivalents

1) Provinz
2) Land
3) Regierungsbezirk
4) Stadtkreis
5) Landkreis

* County Gifhorn is under the jurisdiction of the District President in Lüneburg.

Districts (Regierungsbezirke). The local units, urban and rural counties, are subordinated to these districts.

The Party organization (see II,A, 4, below) combines Anhalt with parts of Provinz Sachsen, and Braunschweig with parts of Provinz Hannover.

Often the Provincial Presidents (Oberpräsidenten) are at the same time Party District Leaders (Partei Gauleiter). This is the case in Hannover. The Governor of Anhalt is also Party District Leader of Magdeburg-Anhalt; the Governor of Thüringen is also its Party District Leader.

b. Prussian Provincial and District Administration. The Provincial President, under the supervision of the Reich Minister of the Interior (Reichsinnenminister) represents the Reich in his province. His task is to coordinate policies for all Reich and state agencies and public enterprises in the province. The details of his functions are evident from a description of the administrative machinery of Provinz Sachsen: the office of the Provincial President in Magdeburg is divided into five departments --

I. General (Allgemein)
II. High Schools (Höheres Schulwesen)
III. Agriculture (Landeskulturamt)
IV. Weights and Measures (Eichamt)
V. Order Police (Inspekteur der Ordnungspolizei)

Attached to the office of the Provincial President in

Magdeburg are the Waterways Directorate (Wasserstrassendirektion) and the Regional Economic Office (Landeswirtschaftsamt).

The territorial subdivisions of the Prussian provinces are the Districts (Regierungsbezirke). The District President (Regierungspräsident) is not subordinate to the Provincial President. Both have their own spheres of jurisdiction and are administratively on the same level. Both have to follow directives of the ministers, especially the Reich Minister of the Interior. The principal functions of the district administration are the control of police agencies and elementary schools, and the supervision of local government. More details can be seen in the following functional breakdown of the district administrations of Magdeburg, Merseburg, and Erfurt. The offices of the District Presidents in Magdeburg, Merseburg, and Erfurt operate through three departments --

I. General

II. Churches and Schools

III. Agriculture

Among the agencies attached to the District President's office are the Main Insurance Offices (Oberversicherungsämter).

Traditionally, autonomous functions are carried on by the provinces (in this sphere called Provinzialverbände). These are exercised by the Landeshauptmann, who is a subordinate of the Provincial President in Magdeburg. The office of the *Landeshauptmann* is located in Merseburg. This sector of administration includes welfare of veterans and survivors, the insane, crippled and blind, reform schools, and care of orphans.

Funds for pensions, widows and orphans, and accident care are handled for the municipalities and federations of municipalities not only of Provinz Sachsen, but also the states of Braunschweig and Anhalt. Moreover, conservation of folkdom and monuments and historical research are under the authority of the *Landeshauptmann*. Many of the subordinate offices are situated in the region.

The organization of the office of the Provincial President in Hannover differs slightly from the one found in Magdeburg. It shows more distinctly the impact of the war. It has the following departments:

I. General -- includes order police, weights and measures
II. Higher Schools
III. Agriculture
IV. Military Economy (*Führungsstab Wirtschaft für den Wehrwirtschaftsbezirk XI*)
V. Economics
VI. A. Food Procurement (*Ernährungsamt, Abteilung A*)
B. Food Rationing (*Ernährungsamt, Abteilung B*)
VII. Timber and Forests (*Holz- und Forstwirtschaftsamt*)
VIII. Short-Distance Transportation (*Bevollmächtigter für den Nahverkehr*)

Attached to the President's office are:

Inland Fishing Office (*Fischereiamt für Binnengewässer*)
Water Economy Office (*Wasserwirtschaftsstelle*)
Waterways Directorate

The greater part of the Hannover area included in the Central Industrial Region belongs to the district of Hildesheim. The office of the District President in Hildesheim is organized along lines parallel to those described for Magdeburg, Merseburg, and Erfurt. The parts of the county of Gifhorn which are included in the Central Industrial Region are under the jurisdiction of the District President in Lüneburg.

c. *States Administration*.

i. *Thüringen*. The Governor (*Reichsstatthalter*) in Weimar has a State Government (*Staatsministerium*) under him. It is headed by a Prime Minister (Ministerpräsident) who is also Minister of Finance, Education, and Economics. The fourth ministry, that of the Interior, is directly subordinated to the Governor. A list of the eleven departments of the Ministry of the Interior shows the functions in the field of "general" administration:

Dept. A.	Deals with general administration, expropriations, trade matters, weights and measures, budget and accounts, surveying, conservation;
Dept. B.	In charge of building construction and city and rural planning;
Dept. C.	Road construction and road police;
Dept. D.	Municipal and county matters, savings banks;
Dept. E.	Health, welfare, social insurance;
Deptl F.	Veterinary matters;
Dept. G.	Personnel;
Dept. I.	Order police;
Dept. P.	Police and air raid protection;
Dept. W.	Selective service.

Among the agencies attached to the Ministry of the Interior are the Pension Insurance Institution, the Main Insurance Office, and the Commissioner for Short-Distance Traffic.

ii. Braunschweig. The administrative setup of Braunschweig is in most respects similar to that of Thüringen. Aside from the Governor for Braunschweig and Anhalt in Dessau, there is the Prime Minister in Braunschweig, who also functions as Minister of the Interior, Finance, and Education. Only the Forest Ministry (Landesforstverwaltung) is in other hands. The distribution of functions between the fourteen departments of the Ministry of the Interior differs slightly from the one found in Thüringen:

Dept. Ia.	Constitution, roads, administrative laws;
Dept. Ib.	Municipal matters, conservation, civil registry and citizenship;
Dept. II.	Private insurance, hunting, foundations;
Dept.III.	Policy;
Dept. IV.	Price control;
Dept. V.	Employees' protection, trades' supervision;
Dept. VIa.	Labor law, employment service, weights and measures, statistics, special matters of industry, commerce and trades;
Dept. VIb.	General matters of industry, commerce and trades;

Dept. VIc. National defense and military matters;
Dept. VII. Health;
Dept. VIII. Social insurance, welfare, physical training, youth welfare, reform schools;
Dept. IX. Veterinary matters, food control, milk;
Dept. X. Sports;
Dept. XI. Hitler Youth.

iii. Anhalt. The administration of the smallest of the three states is still simpler. The Reich Governor of Braunschweig and Anhalt in Dessau, capital of Anhalt, is also head of the state government (Führer der Landesregierung). There are no ministries. The state government in Dessau has only six departments:

I. Presidial
II. Interior
III. Economics
IV. Education
V. Finances
VI. Forests

d. Urban Administration. The lower level of administration in the Prussian districts (Regierungsbezirke) and the German states (Länder) is divided into urban and rural counties (Stadtkreise and Landkreise). There is no clear-cut definition of what cities or towns have to be considered urban counties. Those that for reasons of size or tradition have been classified as urban counties are listed by law. Twenty-nine of these urban counties are included in the Central Industrial Region (see accompanying chart). Their administrative setup and personnel vary according to the size and character of the county.

At the head of the administration stands a Lord Mayor (Oberbürgermeister). His first associate (Beigeordneter) and deputy is the Mayor (Bürgermeister), who in smaller cities may also function as City Comptroller (Stadtkämmerer). There may be more associates (Beigeordnete) called City Councillors (Stadträte), with general or special functions. The latter may include a Commissioner of Building (Stadtbaurat), Commissioner of Taxes

(Stádtfinanzrat), Commissioner of Education (Stadtschulrat), Commissioner of Administration (Stadtverwaltungsrat), Corporation Counsel (Stadtrechtsrat), Surveyor (Stadtvermessungsrat), and Forester (Stadtforstrat).

Mayors are appointed "by the city", with the consent of a Party representative and of (a) the Reich Minister of the Interior in the case of cities with a population of more than 100,000; (b) the Governor for other urban counties; (c) the County Prefect in towns belonging to rural counties. The appointment of deputies follows the same pattern, but in addition the mayor has to be heard. The Party representative and the mayor have to agree on the appointment of city councillors.

e. Rural Administration. In the rural counties, the state performs functions which the smaller municipalities in the areas could not fulfill. The head of the county, the Prefect (Landrat), has jurisdiction in the entire field of general administration. His task, however, has been narrowed down more and more as special administrations of schools (Schulrat), public health (Medizinalrat), and veterninary matters (Veterinärrat) have been added to the county administration. Among the major tasks of the county prefect remain the supervision of local government of the municipalities in his area and their local police activities. The county prefects are appointed by the Führer and Reich Chancellor. The rural counties included in the Central Industrial Region are shown by Prussian districts and other German states on the accompanying chart.

2. Special Administration. There are many government activities outside the field of general, internal administration -- the so-called "special" administrations. The regional areas of such special national agencies originally

corresponded with the traditional administrative areas. However, as a matter of simplification, smaller units in various fields have been combined. Thus, the office of the Senior Finance President (Oberfinanzpräsident) fur Thüringen in Rudolstadt, for instance, was abolished and merged with the office in Magdeburg (see II,A,2,b). Other agencies, more recently formed or reorganized, follow the pattern of the Party Gaue, such as the Labor Trustees (see II,A,2,f). A third group, composed of agencies concerned with war economy, follow the organization of the Military Corps Areas (Wehrkreise - see II,A,2,i). These military districts have emerged as key political units of the German war economy. Finally, in certain fields there exists traditionally an independent geographical system, the Court of Appeal Districts (Oberlandesgerichtsbezirke), for instance (see II,A,2,c).

The concentration of government agencies in six major cities of the Central Industrial Region is shown in Table 2.

a. Interior.

i. Police. One of the separate "special" administrations in the Reich Ministry of the Interior is the police, although the Reichsführer SS and Chief of the German Police (Chef der Deutschen Polizei) is now also Reich Minister of the Interior. The police administration is divided into two major branches:

A. Order Police (Ordnungspolizei), including also Fire Brigades (Feuerwehr) and Technical Corps for Public Emergencies (Technische Nothilfe);

B. Security Police (Sicherheitspolizei), including Criminal Police (Kriminalpolizei), Gestapo (Secret State Police--Geheime Staatspolizei), and various special agencies.

On a regional level, all police activities for the area of a Military Corps Area (Wehrkreis--see below

TABLE 2. CONCENTRATION OF GOVERNMENT AGENCIES IN SIX MAJOR CITIES OF THE CENTRAL INDUSTRIAL REGION

	WEIMAR	MAGDEBURG	HALLE	ERFURT	DESSAU	BRAUNSCHWEIG
General Administration						
State Government	X				X	X
Provincial President		X				
District President		X		X		
County Prefect	X		X		X	X
Police						
Higher Police Commander						X
Inspector of Security Police						X
Police President	X	X	X	X	X	X
Criminal Police-main office			X			
Gestapo-main office		X	X			
Finance						
Senior Finance President		X				
Reich Building Office		X	X	X		X
Foreign currency Control Branch Off.		X				X
Justice						
Court of Appeals						X
District Court	X	X	X	X	X	X
Economics						
Regional Economic Office		X				
Gau Economic Chamber	X	X	X			
Mining Office			X			
Provincial Food Office	X		X			
Labor Trustee	X	X	X			
Transportation						
Commissioner for Short-Distance Traffic	X					
Railroad Division Management			X	X		
Road Construction Management			X			
Waterways Directorate		X				

TABLE 2 (Cont'd)

	WEIMAR	MAGDEBURG	HALLE	ERFURT	DESSAU	BRAUNSCHWEIG
Armed Forces						
Recruiting Replacemtn Dist.Off.	X	X				
Airport		X		X		X
Armament Command	X	X			X	X
Miscellaneous						
Post Directorate		X		X		X
Prov. or State Forest Master	X	X		X	X	X
Reichsbank Office		X	X	X	X	X
Party Gau	X		X		X	
University or college	X		X			X

II, A, 2, i) are coordinated by Higher SS and Police Commanders (Höhere SS und Polizeiführer). One of these has his office in the Central Industrial Region: the "higher SS and Police Commander attached to the Governors and Provincial Presidents of Hannover, in Braunschweig and Anhalt, in Lippe and Schaumburg-Lippe and in Provinz Sachsen in Corps Area XI" has his office in Braunschweig. Subordinated to him are an Inspector of Order Police in Hannover, and an Inspector of Security Police in Braunschweig (Inspekteur der Ordnungs- und Sicherheitspolizei). Under these coordinators, the administration of the Order Police is still carried on by the Prussian District Presidents and State Governments.

In urban areas, state police administration of the Order Police is headed by Police Presidents (Polizeipräsidenten) for larger cities, Police Directors (Polizeidirektoren) for others. In the Central Industrial Region, there are Police Presidents in Braunschweig, Dessau, Erfurt, Halle, Magdeburg, Weimar, and Weissensee; there are Police Directors in Altenburg, Bitterfeld, Gera, Gotha, Jena, and Wittenberg. Several other municipalities in the region have Police Offices (Polizeiämter) or Police Branch Offices (Polizei Zweigstellen). In the smallest cities, police authority is exercised by the mayors. In rural areas, police matters are administered by the county prefect and the municipalities.

The two branches of the Security Police, Criminal Police and Gestapo, are administered by regional Main Offices (Leitstellen) and Offices (Stellen). Subordinated to the Inspector of Security Police in Dresden are Main Offices of Criminal Police and Gestapo in Halle; subordinated to Braunschweig are Main Offices in Hannover, and the Gestapo Main Office of Magdeburg, located in Hildesheim (suspended for the duration). Under the jurisdiction of the Inspector in Kassel are offices in Erfurt and Weimar; under Braunschweig are offices in Braunschweig, Dessau, and Magdeburg.

ii. Technical Corps for Public Emergency. Subordinated to the Chief of the Order Police in the Ministry of the Interior is the Central Office (Reichsamt) of the Technical Corps for Public Emergencies (Technische Nothilfe). The corps was created for the purpose of assisting in public emergencies, including strikes in vital industries, and to handle specific tasks in the fields of national defense and air raid protection. The regional offices (Landesstellen) for the territories included in the Central Industrial Region are Hessen-Thüringen in Kassel, and Mitte in Hannover. Below these are numerous local groups.

iii. Public Health. Although health is considered a "special" branch of administration, it was placed under the supervision of Department IV, Public Health, of the Ministry of the Interior in 1934. On the regional level, the District President's offices in Preussen and the State Government in the other states are the principal supervising agencies. In Thüringen, Department E of the Ministry of the Interior, in Braunschweig, Department VII of the Ministry of the Interior, in Anhalt Department II of the State Government, have the supervision of public health services. On the lowest level, public health service is administered by Health Offices in the counties.

b. Finance. The Reich Ministry of France administers Reich taxes,[1/] customs, buildings, the government lottery, and monopolies like that on spirits. The main fiscal agencies for the region are the offices of the Senior Finance Presidents (Oberfinanzpräsidenten) in

Hannover for this province and the state of Braunschweig, and in Magdeburg for Provinz Sachsen and the state of Anhalt. Recently, the latter office took over the work of the former office in Rudolstadt for Thüringen (Map No. 3265).

These offices have two major departments, taxes and customs. On the local level, Reich taxes are handled by Finance Offices. For the administration of customs there exist Regional (Hauptzollämter) and Local Customs Offices (Zollämter). They also function as local agents of the Reich Spirit Monopoly (Reichsmonopolverwaltung für Branntwein). Attached to the Senior Finance Presidents are the Reich Building Offices (Reichsbauämter) in Braunschweig, Erfurt, Halle, and Magdeburg, and the Foreign Currency Control Office (Devisenstelle) of Hannover with branches (Devisennebenstellen) in Braunschweig and Magdeburg.

c. Justice. About 150 of the over 2,000 German local courts (Amtsgerichte) are located in the Central Industrial Region. They are concerned with smaller civil cases, probate and guardianship cases, registration of deeds, execution of judgments, and with the majority of criminal cases.

Traditionally, appeals from the local courts went to the District Courts (Landgerichte). Under a new law, appeals - where the law permits such - go directly to Courts of Appeal (Oberlandesgerichte--see Map No. 3265). The district courts, moreover, have jurisdiction in more important civil and criminal cases.

1/ Income, including withholding corporation (Körperschafts), turnover (Umsatz), and property (Vermögenssteuern) taxes are levied by the Reich. Most important among municipal taxes are real estate taxes (Grundsteuer) and taxes on industrial, trading, and professional profits (Gewerbesteuer). Other taxes are raised by the states. Many taxes are shared between two or more branches of government.

Fourteen of the more than 180 German district courts are in the region: Altenburg, Braunschweig, Dessau, Eisenach, Erfurt, Gera, Gotha, Halberstadt, Halle, Magdeburg, Naumburg, Nordhausen, Torgau, and Weimar. Appeals from several local courts go to district courts outside the region, namely Rudolstadt and Stendal. Of the thirty-four German courts of appeal, three are situated in the Central Industrial Region: Braunschweig, Jena, and Naumburg. A fourth, Celle, has jurisdiction over second appeals from a number of local courts in the region. The Braunschweig area is under the jurisdiction of the court of appeals in Braunschweig, and the district court there. The local courts in Clausthal and Osterode in Hannover belong to the district court in Göttingen, and the local courts in Gifhorn, Goslar, and Peine to the district court in Hildesheim. Appeals from these district courts go to the court of appeals in Celle. The Thüringen district courts of Altenburg, Eisenach, Gera, Gotha, and Weimar are under the jurisdiction of the court of appeals in Jena. The remaining parts of the Central Industrial Region (Anhalt and Provinz Sachsen) come under the jurisdiction of the court of appeals in Naumburg. The district court for Anhalt is in Dessau. Provinz Sachsen has district courts in Erfurt, Halberstadt, Halle, Magdeburg, Naumburg, Nordhausen, and Torgau.

d. Economics. The Reich Ministry of Economics is represented in the Central Industrial Region by Regional Economic Offices (Landeswirtschaftsämter), whose task is defined as the uniform direction of all economic measures. In particular, they are charged with the protection of industrial, trade, handicarft, credit and insurance, and power establishments, with rationing in various fields, and with collection of old material.

The Regional Economic Office for the greater part of Provinz Sachsen in Magdeburg is administered by the Provincial President, the office for the district of Hannover and the state of Braunschweig by the Provincial President in Hannover, and the office for the district of Erfurt and the state of Thüringen by the Thüringen Minister of Economics in Weimar. The city and rural counties of Altenburg are under the jurisdiction of the State Governor in Dresden (Map No. 3265). These offices have advisory councils composed of businessmen. The local administration is delegated to Economic Offices (Wirtschaftsämter) headed by the mayors in the cities and the county prefects in rural areas. These local offices function as ration boards and scrap collection centers.

To "represent all business in the Gau, creating a united front of business in relation to the --- executive machinery of the state", is the task of the Gau Economic Chambers: Halle-Merseburg in Halle, Magdeburg-Anhalt in Magdeburg, Südhannover-Braunschweig in Hannover, and Thüringen in Weimar.

Hannover has the only Stock Exchange (Wertpapierbörse) for the region. Grain and Seed Exchanges (Amtliche Grossmärkte für Getreide und Futtermittel) exist in Halle, Hannover, and Magdeburg. In addition, there is a Sugar Exchange (Zuckerbörse) in Magdeburg.

The safety and health supervision of the mines rests with a group of semi-independent agencies under the Reich Ministry of Economics, the Regional Mining Offices (Oberbergämter). The office in Halle includes the district of Merseburg and the district of Magdeburg with the exception of the counties of Haldensleben, Oschersleben, and Wernigerode, the city of Halberstadt, and the western part of the county of Quedlinburg, as well as the state of Anhalt with the exception of the county of Ballenstedt. The excepted parts, the districts of Hannover and Erfurt, and the states of Braunschweig and Thüringen--except the counties of Altenburg--are administered in Clausthal-Zellerfeld. The counties of Altenburg are under the jurisdiction of the Regional Mining Office of Freiberg, Land Sachsen.

e. Food and Agriculture. Since 1939 Germany has had regional and local food offices (Provinz- or Landesernährungsämter and Ernährungsämter) for the supervision of production, harvesting, delivery, distribution, consumption, and--above all-rationing of food. Correspondingly, these offices operate through two departments: A, for procurement of supply, and B, for rationing. These offices are closely tied up with the regional peasant organizations (Landesbauernschaften) of the Food Estate. The Food Estate was originally established for the purpose of representing the German peasant estate and German agriculture. As a war measure, the Food Estate was placed under the Reich Ministry of Food and Agriculture as an executive agency. Its facilities and personnel were placed at the disposal of the regional and local food offices. In most instances, the leaders of the regional peasant organization (Landesbauernführer) head the regional food office. The regional peasant organizations form Department A, the procurement department of the regional food offices.

The following regional offices cover the territory of the Central Industrial Region: Sachsen-Anhalt in Halle, Niedersachsen in Hannover, and Thüringen in Weimar.

Below these are numerous food offices and county and local peasant organizations (Kreis- und Ortsbauernschaften).

f. *Labor and Public Insurance*. Originally, the task of the Reich Labor Trustees (*Reichstreuhänder der Arbeit*) was to "maintain labor peace." In this capacity they regulated wage scales and labor conditions. Since the autumn of 1943 the regional public employment service offices have been transferred to the Party *Gaue* in Germany, and became *Gau* Labor Exchanges (*Gauarbeitsämter*) under the direction of a president, who is in most instances identical with the Labor Trustee in that area. Correspondingly, there now exist Gau Labor Exchanges for Südhannover and Braunschweig in Hannover, for the districts of Halle and Merseburg in Halle, for Magdeburg and Anhalt in Magdeburg, and for Thüringen in Weimar (Map No. 3265). In the subordinated Labor Exchanges the head of the office is at the same time county or local representative of the Labor Trustee. The purpose of the new arrangement was to assure close cooperation with the Party organization.

The jurisdiction for disputes between employers and employees rests with special labor courts attached to local courts. There are about 45 local labor courts in the Central Industrial Region. Appeals go to district labor courts connected with district courts. The following district labor courts are located in the region: Braunschweig, Erfurt, Halberstadt, Halle, Magdeburg, and Weimar.

The pension insurance of invalids (*Invalidenversicherung*) has traditionally been carried by the states. There are four Pension Insurance Funds in the region: Merseburg for Provinz Sachsen and the state of Anhalt; Hannover for Hannover; Weimar for Thüringen; Braunschweig for the state.

Supervisory agencies in the field of health insurance and administrative courts (*Spruchbehörde*), and also for certain aspects of invalids' and salaried employees' insurance on the county level, are the Insurance Offices. Appeals in health, accident, invalid, and certain salaried employees' insurance cases go to Main Insurance Offices (Oberversicherungsämter). Such offices exist in Magdeburg, Merseburg, Erfurt, Weimar, Braunschweig, and Dessau. Miners' Insurance funds (Knappsschaften), including sickness, invalid, social insurance, are administered in five regional offices: Halberstadt, Halle, Hannover, Eisleben (for Mansfeld), and Kassel (for Thüringen).

The care of army veterans and their survivors is in the charge of two regional (Haupt-) and eight local pension offices (Versorgungsämter). The regional pension offices are: Niedersachsen-Nordmark in Hannover for Provinz Hannover and the state of Braunschweig, with local offices in Braunschweig and Hannover; and Mitteldeutschland in Magdeburg, with local offices in Dessau, Erfurt, Gera, Gotha, Halle, and Magdeburg.

g. Transportation. The Reich Transport Minister is in charge of transportation by rail, motor, and water. In 1943 the Transport Minister and the Minister of Economics cooperated with the Reich Minister for Armament and War Production in establishing a Bureau for the Organization of Transport in the Armament Ministry. On the regional level, Transport Deputies (Verkehrsbevollmächtigte) were attached to the regional Armament Inspections for the purpose of coordinating all transport activities. (See under k, below, for list of Armament Inspections in the Central Industrial Region.) Special agents of the Minister are the Commissioners for Short-Distance Traffic (Bevollmächtigte für den Nahverkehr). Such commissioners are attached to the offices of the Provincial President in Hannover and of the Governor in Weimar.

i. Railways. On the regional level, the German National Railroad is administered by Division Managements. Subordinated to these Managements are superintendents' offices for (1) operation (Betriebsämter), (2) new construction

(Neubauämter), (3) master mechanics (Maschinenämter), (4) traffic (Verkehrsämter), and surveying (Vermessungsämter).

The district of Erfurt and the state of Thüringen are administered by the division management in Erfurt; the area of Halle, part of the district of Magdeburg and the state of Anhalt by the division management in Halle; the province of Hannover, the greater part of the district of Magdeburg, and the state of Braunschweig by the division management in Hannover. (See Section IX of this report for further details.)

ii. Highways. The German law concerning the preliminary classification of roads and road management of 26 March 1934 differentiates between super-highways (Kraftfahrbahnen, Reichsautobahnen), national roads (Reichsstrassen), and state roads (Landstrassen) of first and second class.

The major instrument of motor transportation is the German super-highway. They are under the supervision of the Inspector General of German Roads. On the regional level, administration is in the hands of Construction Management Head Offices (Oberste Bauleitungen). Below them are local Construction Offices (Bauabteilungen) and Road Maintenance Offices (Strassenmeistereien). Halle is the only head office located in the region, but there is a number of construction and maintenance offices in its territory. The national roads also are directly administered by the Inspector General. The task of administering and maintaining the state roads is left to the states and Prussian provinces. (For further details see Section IX below).

iii. Waterways. The Weimar Constitution (Article 97) transferred the administration of waterways to the Reich. The Nazis, in 1941, established the office of an Inspector General for Water and Power. Subordinated to his Department of Waterways on the regional level are Waterways Directorates (Wasserstrassendirektionen). Only one of them is located in the Central Industrial Region, at Magdeburg; it is attached to the office of the Provincial President (see II,A,1,b, above). Several of its subordinated Waterways Offices, Machinery Offices, and Construction Offices are also in the territory of the region. Eisenach is the seat of construction offices for the Werra Canal and for the Weser-Main waterways. These offices are subordinated to the head office in Hannover (attached to the Provincial President's office--see II,A,i,b, above). (For further details see Section IX below).

h. Communications. Post, telephone, telegraph, and radio in Germany are administered by the Reich Post Ministry. Its regional offices are called Reich Post Directorates (Reichspostdirektionen). Of the territory in the Central Industrial Region, the state of Braunschweig and the county of Peine belong to the office in Braunschweig; the district of Erfurt and the state of Thüringen to that in Erfurt; the other parts of the district of Hannover to that in Hannover; the district of Merseburg and the counties of Altenburg to that in Leipzig; and the district of Magdeburg and the state of Anhalt to that in Magdeburg. (For further details see IV, C, below.)

i. Military. The equivalent of the American "Corps Area" is the German Wehrkreis. The territory of the Central Industrial Region belongs to three such areas:

District IV, with headquarters in Dresden, includes the eastern part of Thüringen;
District IX, with headquarters in Kassel, includes the western part of Thüringen;
District XI, with headquarters in Hannover, includes the southern part of Provinz Hannover, the states of Braunschweig and Anhalt, and Provinz Sachsen.

These districts coincide with the Armament Inspections, the regional sections of the Ministry of Armament and War Production. As such they are of foremost importance for the German war economy.

The German recruitment system is of special interest in connection with the demobilization program: the Corps Areas are divided into Recruitment Replacement Districts (*Wehrersatzbezirke*). On the next level there are Recruitment Districts (*Wehrbezirke*), divided into Recruitment Reporting Districts (*Wehrmeldebezirke*). On the lowest level are Mustering Districts (*Musterungsbezirke*). Weimar and Magdeburg are seats of Recruiting Replacement District Offices; Naumburg, Halle, Altenburg, Eisleben, Bitterfeld, Wittenberg, Sangerhausen, Gera, Mühlhausen, Erfurt, Eisenach, Gotha, Braunschweig, Goslar, Burg, Halberstadt, Dessau, and Bamburg have Recruiting District Offices.

Several cities in the region are home stations of military formations:

Braunschweig - 31st Infantry Division
191st Reserve Division
Erfurt - 29th Motorized Division
Gera - 7th Panzer Division
Gotha - 20th Panzer Division
Jena - 339th Infantry Division
Magdeburg - 13th Panzer Division
Weimar - 299th Infantry Division
1st Panzer Division
179th Reserve Panzer Division

In addition, Jena is the seat of the 15th Army Corps, now the 3rd Panzer Army, and Magdeburg is the seat of the 14th Panzer Corps.

j. *Air*. The highest authority of German aviation and the high command of the German airforce is vested in the Reich Air Ministry. During the war, civil aviation is handled by special sections of the military Air Service Commands. These Air Service Commands corresplnd roughly with the Corps Areas (*Wehrkreise*):

Commands III/Iv include District IV (Dresden);
Command VI includes District IX (Kassel);
Command XI includes District XI (Hannover).

The sections for civil aviation operate through field offices for airport management and flight safety stations near airports. The following major airports are in the territory of the Central Industrial Region: Braunschweig, Erfurt, Halle-Leipzig in Schkeuditz, and Magdeburg-Süd. (For further details see Section IX, F, 2 below).

k. Armaments. The Reich Ministry for Armament and War Production operates on the regional and district level through Armament Inspections and Armament Commands. They deal with the production of combat material, scheduling and contract letting. The Armament Command at Halle is subordinated to the Armament Inspection at Dresden; Eisenach and Weimar to that at Kassel; and Braunschweig, Dessau, Hannover, and Magdeburg to that at Hannover.

Attached to the Armament Inspection are special Deputies for Building Construction (Baubevollmächtigte) and in his functions as Inspector General of Water and Power, the Minister of Armaments and Munitions is regionally represented by Power Deputies.

l. Forests. In 1934 the task of conserving and cultivating the German forests was transferred from the states to the Reich. The office of the Reich Forest Master was established. The administration, however, still rests with the states. Here again, the structure in Preussen is different from that in the other states. It has four provincial and twenty-two district forest offices. District forest offices covering the Prussian territories within the Central Industrial Region are located in Magdeburg, Merseburg, Erfurt, and Hildesheim. In Thüringen, the forest administration forms part of the Finance Ministry. Braunschweig and Anhalt have special state forest offices.

Special Forest and Timber Economy Offices, corresponding to the Economic and Food Offices, are set up as part of the Provincial Presidents' administration as a measure of war economy. They may be attached to equivalent authorities at the seat of Corps Areas. For most of Thüringen they are under the Minister of Economics, and for the counties of Altenburg under the Reich Governor in Dresden.

m. Propaganda. The regional outlets of the Reich Ministry of Public Enlightenment and Propaganda, the Reich Propaganda Offices, follow the pattern of the Nazi Party Gaue: Halle-Merseburg in Halle, Magdeburg-Anhalt in Dessau, Südhannover-Braunschweig in Hannover, and Thüringen in Weimar.

n. German Central Bank. Directly subordinated to the Reich Chancellor is the German Central Bank (Reichsbank). Of its main functions the following are of importance on the regional and local level: (1) acting as a banker's bank and as the banker of the Reich; (2) securing the utilization of available credit and capital funds and directing their flow -- under present conditions mainly toward Reich financing; (3) controlling stock market transactions and conducting the clearing of security transfers.

Main branches (Reichsbankhauptstellen) and branches (Reichsbankstellen) are directly subordinated to the Board of Directors in Berlin. These are independent branches, conducting their business through their own managing boards and assisted by advisory committees. Sub-branches are dependent on the directions of the branch to which they are attached. Within the Central Industrial Region there are:-- one Main Branch Office at Magdeburg; seven Branch Offices at Braunschweig, Dessau, Eisenach, Erfurt, Gera, Halberstadt, Halle, and Nordhausen; and twenty-seven Sub-Branch Offices.

o. Labor Service. The National Socialist Government made labor service compulsory for German youth from eighteen to twenty-five years of age. One year of labor service had to precede army service. The war, however, made it necessary to draft many boys of the younger classes directly into the armed forces. On the other hand, German girls have to serve an additional six months of war auxiliary service. The goal of labor service is physical training and spiritual indoctrination. Projects include harvesting, emergency assistance and, during the war, service to the armed forces in the fields of building and construction.

The regional field offices of the Reich Labor Service for men are called "Arbeitsgaue", for women, "Bezirke". They are subdivided into groups, departments, and schools. Labor service in the Central Industrial Region is administered by the following districts for men:

XIII. Magdeburg-Anhalt in Magdeburg
XIV. Halle-Merseburg in Halle
XVIII. Niedersachsen-Ost in Hannover
XXIII. Thüringen in Weimar

In addition there are the following districts for women:

VI. Mitteldeutschland in Weimar
VIII. Hannover-Magdeburg in Hannover

3. Public Enterprises and Associations. In Germany, the sphere of government activities has traditionally included ownership and management of public enterprises (Table 2). Reich, states, federations of municipalities, and individual towns are engaged in the field of public utilities and other

TABLE 3. TYPE OF PUBLIC ENTERPRISE

City or Town	Electricty	Gas	Water	Streetcar
Anhalt				
Bornburg		X	X	
Dessau			X	
Köthen			X	
Zerbst			X	
Hannover				
Osterode				
Peine	X	X	X	
Zellerfeld			X	
Braunschweig				
Blankenburg	X		X	
Braunschweig 1	X	X	X	X
Gandersheim			X	
Goslar			X	
Helmstedt		X	X	
Watenstedt			X	
Wolfenbüttel	X	X	X	
Provinz Saxony				
Aschersleben	X	X	X	
Bitterfeld			X	
Burg	X		X	
Calbe				
Delitzsch			X	
Eckartsberga				
Eisleben	X		X	
Erfurt	X	X	X	
Halberstadt	X	X	X	X
Haldensleben	X		X	
Halle	X	X	X	X
Heiligenstadt	X		X	
Langensalza	X	X	X	
Liebenwerda				
Magdeburg 2	X	X	X	
Mansfeld			X	
Merseburg	X	X	X	
Mühlhausen		X	X	
Naumburg	X	X	X	X
Nordhausen	X		X	
Oschersleben	X	X	X	
Quedlinburg	X	X	X	
Querfurt	X		X	
Sangerhausen	X		X	
Schweinitz				
Torgau			X	
Wanzleben				
Weissenfels	X		X	
Wernigerode	X	X	X	
Wittenberg			X	
Wolmirstedt	X		X	
Worbis	X	X		
Zeitz	X	X	X	
Ziegenrück			X	

1 In Braunschweig public enterprises also include one bus company and the Neustadtmühle.

2 In Magdeburg public enterprises also include Mittelandkanal-Hafen Magdeburg AG.

TABLE 3 (Cont'd)

City or Town	Electricity	Gas	Water	Streetcar
Thüringen				
Altenburg		X	X	
Apolda			X	
Arnstadt	X	X	X	
Eisenach		X	X	
Gera		X	X	
Gotha			X	
Greiz	X	X	X	
Jena		X	X	
Schleiz	X	X	X	
Sondershausen	X	X	X	
Stadtroda			X	
Weimar	X	X	X	X

fields less closely connected with the public welfare. Such enterprises may be merged in the general administration of communal affairs and have no separate management; others are independently managed but under official supervision; and many are operated in private form as corporations or limited-liability companies. Public and private capital may even own such enterprisés jointly.

Provinz Sachsen has public enterprises in the fields of finance, insurance, public utilities, and transportation. There is a federation and clearinghouse of savings institutions of Central Germany in Magdeburg (Mitteldeutscher Sparkassen- und Giroverband); a rural mortgage institution with its own bank in Halle and with branches in Magdeburg, Nordhausen, and Weimar (Landschaft und Lanschaftliche Bank der Provinz Sachsen); and an urban mortgage institution (Stadtschaft der Provinz Sachsen) in Halle. A life insurance institution for Sachsen, Thüringen, and Anhalt is located in Merseburg. There is a rural fire insurance association (Land-Feuersozietät) of the province in Magdeburg, and an urban one (Städte Feuersozietät) in Merseburg. The electricity works (Elektrizitätswerk Sachsen-Anhalt AG/ESAG7) are in Halle, while Erfurt is the seat of the main power station (Grosskraftwerk Erfurt AG), of the main gas company (Grossgaswerke Erfurt AG), and of the long-distance gas company (Gasfernversorgung Erfurt AG). Another long-distance gas company is in Halle. The seat of the motor transport company is in Magdeburg.

None of the public enterprises of Provinz Hannover are situated in the territory of the Central Industrial Region. The following enterprises, all located in the city of Hannover, are mentioned only because of their importance for the parts of the region that belong to Hannover. Hannover has a state credit institution (Hannoversche Landeskreditanstalt), a state bank and clearinghouse (Niedersächsische Landesbank-Girozentrale), and a savings banks' clearing association (Niedersächsischer Sparkassen-Giroverband). There is an urban mortgage institution (Stadtschaft der Provinz Hannover), a provincial life insurance institution (Provinzial-Lebensversicherungsanstalt), and a rural fire insurance fund (Landschaftliche Brand-Kasse). Air transportation is maintained by Luftverkehrs AG Niedersachsen.

Thüringen has a state bank and a mortgage bank (Thüringische Landeshypothekenbank AG) in Weimar, and a fire insurance institution (Thüringische Landesbrandversicherungsanstalt) in Gotha. Weimar is also the seat of electricity works (Thüringische Landeselektrizitätsversorgung AG - Thüringer Werke) and of power stations (Werrakraftwerke and AG Obere Saale). A holding company for state-owned power works and participations of Land Thüringen in electricity concerns is AG Thüringische Werke, Weimar. There are a state enterprise for motor transportation (Kraftverkehrgesellschaft Thüringen) and a local railroad (Schleizer Kleinbahn AG) in Weimar.

Braunschweig also has a state bank and a state savings institution, public institutions for life, accident, and liability insurance (Oeffentliche Lebens-, Unfalls- und Haftpflichtversicherungsanstalt), for fire insurance (Braunschweigische Landesbrandversicherungsanstalt), and for furniture and household insurance (Braunschweigische öffentliche Mobiliarversicherungsanstalt). Motor transportation is maintained by Kraftverkehrsgesellschaft Braunschweig GmbH. Braunschweigisches Kohlenbergwerk AG is engaged in coal mining. The general holding company for the state's mining and other enterprises is Braunschweig GmbH. In addition to the public enterprises that cover the territories of Sachsen and Anhalt and are described above, there is a fire insurance fund (Anhaltische Landesbrandkasse) in Dessau.

With a few exceptions, practically all of the urban counties and the capitals of the rural counties own and operate waterworks. Some towns that do not receive all of their gas or electricity from outside sources have plants and distribution systems of their own. Other towns that are supplied by the large networks have only distribution systems.

Braunschweig, Halberstadt, Halle, Naumburg, and Weimar have public streetcar companies, while the streetcar system of Magdeburg is operated by a private firm. Braunschweig also has a bus company. Attached to the city works of Braunschweig is a grain mill (*Neustadtmühle*). The city of Magdeburg owns *Mittelland Kanal-Hafen Magdeburg AG*. (More details are shown on Table 3).

The following firms are not "local public enterprises," but local affiliates of the largest German public enterprise, *Reichswerke Hermann Göring*: *Wohnungs AG der RWK HG*, Braunschweig; *Berbau AG*, Salzgitter; *Negrella AG*, Salzgitter; *Ferngasgesellschaft*, Braunschweig; *Steine und Erde GmbH*, Goslar; *Stahlwerk Braunschweig GmbH*.

The large holding company of the state of Preussen, *Preussische Bergwerks- und Hütten AG* (PREUSSAG), has two holdings in the Central Industrial Region: *Harzer Berg- und Hüttenwerke*, and *Unterharzer Berg- und Hüttenwerke*, both in Goslar.

4. *Party Administration*. The regional heads of the Nazi Party are the *Gauleiter*. The Central Industrial Region belongs to four Party *Gaue* (Map No. 3222): Halle-Merseburg, with its administration in Halle; Magdeburg-Anhalt, in Dessau; Südhannover-Braunschweig, in Hannover; and Thüringen in Weimar.

Among the numerous organizations connected with the Nazi Party, the Labor Front is of special importance because of its character as well as its size. It is a compulsory organization of all working Germans. Its purpose is to indoctrinate the working class with Nazi doctrine. One of its instruments is the "Strength through Joy" association. The administration on the regional level (Gaue) corresponds with the Party organization except that the Labor Front Gau of Magdeburg-Anhalt is administered in Magdeburg.

The Party organization dominates the field of welfare work through its NS Welfare. This organization also follows the pattern of the Party Gaue, except that Halle-Merseburg is administered from Naumburg. The compulsory organizations of German youth, the Hitler Youth for boys and the Union of German Girls, use slightly different terms for their regional units: Gebiete and Obergaue. These consist of the following: Mittelland in Halle, Mittelelbe in Magdeburg, Niedersachsen in Hannover, and Thüringen in Weimar.

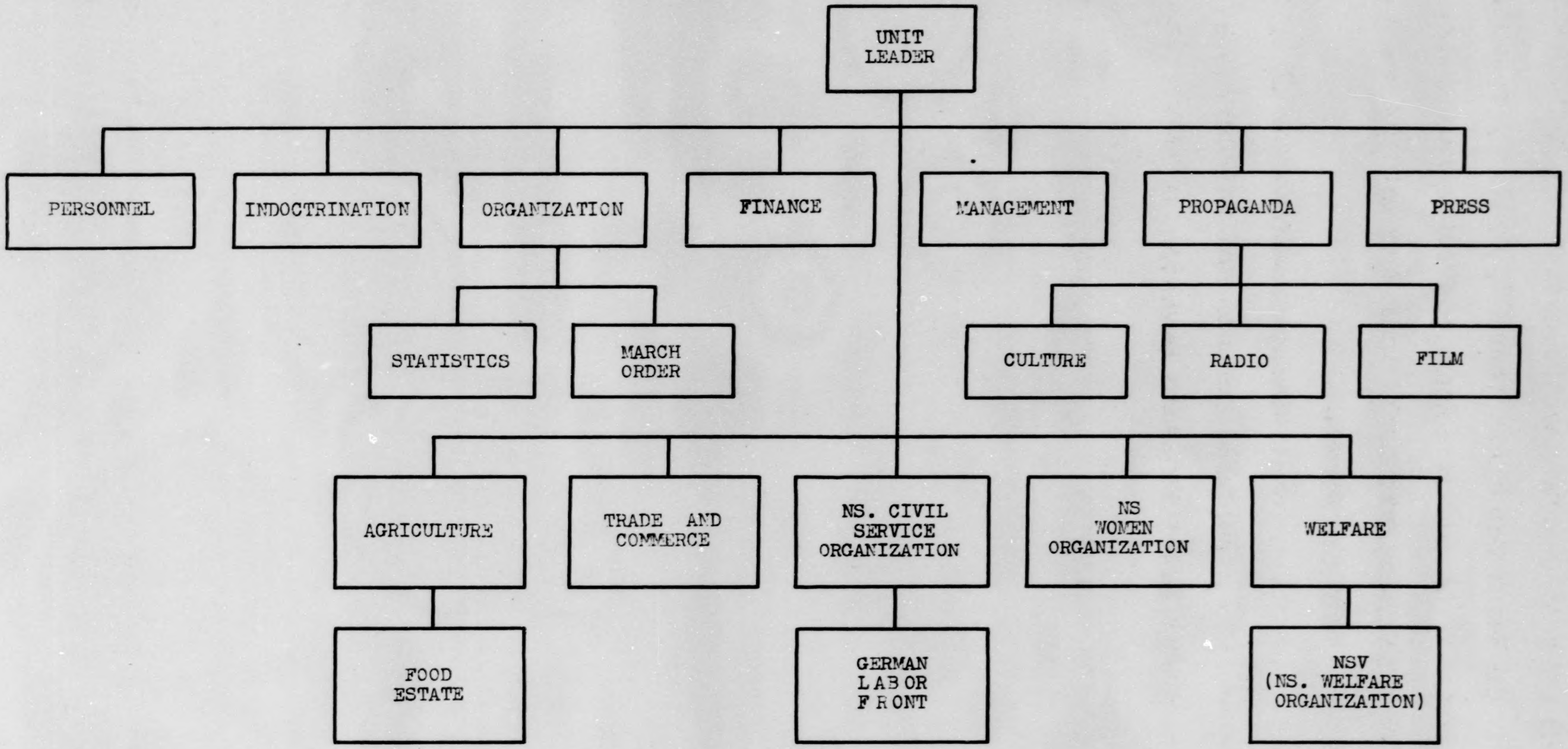
The organization of the semi-military outfits of the NSDAP represents another variation. The SA is divided into groups (Gruppen) as follows; Elbe in Magdeburg, Niedersachsen in Hannover; and Thüringen in Weimar. The administrative units of the SS are Main Sections (Oberabschnitte) and Sections (Abschnitte). SS Oberabschnitt Elbe in Dresden includes Abschnitt XVIII, Halle, Oberabschnitt Fulda-Werra, and Abschnitt XXVII, Weimar, SS Oberabschnitt Mitte in Braunschweig includes Abschnitte XVI, Dessau, and IV, Hannover. The NSKK, the National Socialist Motor Corps, is a military auxiliary composed of car owners and operators. It is organized in Motor Main Groups (Motorobergruppen) and Groups (Gruppen). Motorgruppe Niedersachsen in Hannover is part of Motorobergruppe Nord in Hamburg; Motorgruppe Thüringen in Weimar belongs to Obergruppe Ost in Berlin.

On the regional level Party Officials such as Gauleiter frequently hold government positions as Provincial Presidents or Reich Governors (see II, A, 1, a, above). On the other hand, mayors or county prefects, as a rule, are not Party officials, although their appointment is, of course, controlled by the Party.

In general, a local administrative unit (Ortsgruppe) presents the structure shown on the attached chart (Chart of National Sozialistische Deutsche Arbeiter Partei).

NATIONAL SOZIALISTISCHE DEUTSCHE ARBEITER PARTEI

Administrative Structure of Local Unit (Ortsgruppe)


UNIT LEADER
PERSONNEL
INDOCTRINATION
ORGANIZATION
FINANCE
MANAGEMENT
PROPAGANDA
PRESS
STATISTICS
MARCH ORDER
CULTURE
RADIO
FILM
AGRICULTURE
TRADE AND COMMERCE
NS. CIVIL SERVICE ORGANIZATION
NS WOMEN ORGANIZATION
WELFARE
FOOD ESTATE
GERMAN LABOR FRONT
NSV (NS. WELFARE ORGANIZATION)

B. Political Structure

The political developments in the Central Industrial Region are closely interwoven with the early history of the Weimar Republic. A few days before revolution broke out in Berlin on 9 November 1918, revolutionary Councils of Workers and Soldiers were established in a number of German cities including Braunschweig and Hannover. The Duke of Braunschweig resigned on 8 November. In December, a meeting of Councils of Workers and Soldiers in Erfurt demanded the merger of all the former Thüringen principalities in a larger Thüringen. The first elections for a state parliament in Anhalt in December 1918 gave the Social-Democrats a 50 percent majority. At the same time, the Independent Socialists won first place in municipal elections in Braunschweig. The Democrats obtained a few hundred votes more than the Social-Democrats. A combination of other parties received less than 20 percent of all votes. In January 1919, in many cities including Halle, so-called Spartakus groups protested violently against the murder of the radical leaders, Liebknecht and Luxemburg. In the same month, a congress of Councils of Workers and Soldiers of Northwestern Germany in Braunschweig demanded the establishment of a Republic Northwest Germany as part of a German Federation. In February 1919, the Constitutional Assembly opened in Weimar. On August 11th, the new constitution was signed by the Reich President Ebert, and the name Weimar became the byword of the new German republic.

The political structure of the Region and its changes are reflected in the results of the national elections during the years of the Weimar republic (Table 4). Many features are identical for the various territorial parts of the region.

The total number of votes kept pace with the increase

TABLE 4. RESULTS OF REICHSTAG ELECTIONS 1919 TO 1932 BY POLITICAL PARTIES AND TERRITORIAL UNITS [1/]

A. Province of Hannover, District of Hildesheim

Selected Political Parties	Votes (in 1,000) cast in Reichstag elections of						
	1920	1924		1928	1930	1932	
		May	Dec.			July	Nov.
Total	302	315	313	322	355	385	357
NSDAP (Nazis)	-	19	10	13	81	173	144
DNVP (Conservatives)	20	49	56	29	18	17	22
DVP ("National-Liberals")	61	35	41	36	19	5	8
DWP (Middle Class)	-	-	-	12	9	-	-
Zentrum	31	30	32	30	33	36	33
DDP (Democrats)	15	12	15	13	12	3	3
SPD (Majority Socialists)	98	99	113	137	135	113	103
USPD (Independent Soc.)	41	2	1	-	-	-	-
KPD (Communists)	1	20	9	8	17	29	35

[1/] Source: Vierteljahrshefte zur Statistik des Deutschen Reichs 1919, No. IV and Supplement No. I; Statistik des Deutschen Reichs, vols. 291, 315, 372, 382 and 434

TABLE 4 (con't)

B. Province Sachsen

Selected Political Parties	Votes (in 1,000) cast in Reichstag elections of							
	1919*	1920	1924		1928	1930	1932	
			May	Dec.			July	Nov.
	District Magdeburg							
Total	668	652	680	696	706	762	792	759
NSDAP (Nazis)	-	-	34	21	11	148	344	293
DNVP (Conservatives)	60	109	171	175	118	65	66	87
DVP ("National-Liberals)	26	94	89	94	90	50	9	15
DWP (Middle Class)	-	-	24	26	30	36	2	1
Zentrum (Catholics)	11	11	13	15	13	14	18	16
DDP (Democrats)	159	89	50	50	37	28	9	6
SPD (Majority Soc.)	392	214	214	268	304	280	250	229
USPD (Independent Soc.)	21	128	-	-	-	-	-	-
KPD (Communists)	-	7	65	36	50	75	88	102
	District Merseburg							
Total	667	688	716	723	721	824	843	815
NSDAP (Nazis)	-	-	62	31	20	169	359	281
DNVP (Conservatives)	77	132	197	215	154	65	68	101
DVP ("Nat'l.-Liberals")	18	98	76	87	74	51	10	17
DWP (Middle Class)	-	-	12	21	43	45	3	3
Zentrum (Catholics)	6	7	9	10	10	11	13	12
DDP (Democrats)	161	69	37	50	33	26	8	7
SPD (Majority Soc.)	109	61	111	135	172	160	167	157
USPD (Independent Soc.)	295	311	12	4	-	-	-	-
KPD (Communists)	-	11	184	164	176	206	204	221
	District Erfurt							
Total	282	275	281	280	271	319	341	334
NSDAP (Nazis)	-	-	24	14	9	58	140	115
DNVP (Conservatives)	-	66	63	62	44	24	23	35
DVP ("Nat'l.-Liberals")	40	29	24	34	31	19	5	9
DWP (Middle Class)	-	-	14	14	21	19	1	1
Zentrum (Catholics)	47	41	42	41	37	43	48	45
DDP (Democrats)	51	22	12	14	11	12	3	2
SPD (Majority Socialists)	58	24	42	57	75	71	58	58
USPD (Independent Soc.)	86	88	4	-	-	-	-	-
KPD (Communists)	-	5	43	37	30	48	60	63

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* Constitutional Assembly

TABLE 4 (con't)

B. Province Sachsen

Selected Political Parties	Votes (in 1,000) case in Reichstag elections of							
	1919*	1920	1924		1928	1930	1932	
			May	Dec.			July	Nov.
	District Magdeburg							
Total	668	652	680	696	706	762	792	759
NSDAP (Nazis)	-	-	34	21	11	148	344	293
DNVP (Conservatives)	60	109	171	175	118	65	66	87
DVP ("National-Liberals)	26	94	89	94	90	50	9	15
DWP (Middle Class)	-	-	24	26	30	36	2	1
Zentrum (Catholics)	11	11	13	15	13	14	18	16
DDP (Democrats)	159	89	50	50	37	28	9	6
SPD (Majority Soc.)	392	214	214	268	304	280	250	229
USPD (Independent Soc.)	21	128	-	-	-	-	-	-
KPD (Communists)	-	7	65	36	50	75	88	102
	District Merseburg							
Total	667	688	716	723	721	824	843	815
NSDAP (Nazis)	-	-	62	31	20	169	359	281
DNVP (Conservatives)	77	132	197	215	154	65	68	101
DVP ("Nat'l.-Liberals")	18	98	76	87	74	51	10	17
DWP (Middle Class)	-	-	12	21	43	45	3	3
Zentrum (Catholics)	6	7	9	10	10	11	13	12
DDP (Democrats)	161	69	37	50	33	26	8	7
SPD (Majority Soc.)	109	61	111	135	172	160	167	157
USPD (Independent Soc.)	295	311	12	4	-	-	-	-
KPD (Communists)	-	11	184	164	176	206	204	221
	District Erfurt							
Total	282	275	281	280	271	319	341	334
NSDAP (Nazis)	-	-	24	14	9	58	140	115
DNVP (Conservatives)	-	66	63	62	44	24	23	35
DVP ("Nat'l.-Liberals")	40	29	24	34	31	19	5	9
DWP (Middle Class)	-	-	14	14	21	19	1	1
Zentrum (Catholics)	47	41	42	41	37	43	48	45
DDP (Democrats)	51	22	12	14	11	12	3	2
SPD (Majority Socialists)	58	24	42	57	75	71	58	58
USPD (Independent Soc.)	86	88	4	-	-	-	-	-
KPD (Communists)	-	5	43	37	30	48	60	63

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* Constitutional Assembly

TABLE 4 (Con't)

Selected Political Parties	Votes (in 1,000) cast in Reichstag elections of							
	1919*	1920	1924		1928	1930	1932	
			May	Dec.			July	Nov.
C. Land Thüringen								
Total			810	824	813	922	966	912
NSDAP (Nazis)		not	85	45	30	180	424	344
DNVP (Conservatives)		compar-	61	72	44	30	39	56
DVP ("Nat'l.-Liberals")			102	116	91	50	17	26
DWP (Middle Class)		able	23	34	63	49	7	4
Zentrum (Catholics)			9	10	9	10	15	11
DDP (Democrats)			36	43	31	27	10	7
SPD (Majority Soc.)			200	250	204	287	231	211
USPD (Independent Soc.)			-	-	-	-	-	-
KPD (Communists)			128	108	105	140	160	178
D. Land Braunschweig								
Total	242	267	269	278	284	313	325	317
NSDAP (Nazis)	-	-	27	11	19	83	156	137
DNVP (Conservatives)	.	52	53	59	27	17	16	20
DVP ("Nat'l.-Liberals")	.	65	48	60	47	23	4	7
DWP (Middle Class)	-	-	-	-	5	12	-	-
Zentrum (Catholics)	.	3	4	4	4	5	6	5
DDP (Democrats)	44	19	14	16	10	10	2	1
SPD (Majority Soc.)	72	31	83	105	142	127	108	109
USPD (Independent Soc.)	68	108	-	-	-	-	-	-
KPD (Communists)	-	2	24	13	10	21	30	34
E. Land Anhalt								
Total	174	174	195	200	203	220	227	224
NSDAP (Nazis)	-	-	10	6	5	44	102	91
DNVP (Conservatives)	13	27	36	34	29	8	10	17
DVP ("Nat'l.-Liberals")	1	25	37	46	38	23	3	5
DWP (Middle Class)	-	-	6	4	9	9	-	-
Zentrum (Catholics)	1	2	2	2	2	3	3	3
DDP (Democrats)	55	25	10	12	10	5	2	2
SPD (Majority Soc.)	100	63	66	83	87	85	80	76
USPD (Independent Soc.)	3	30	-	-	-	-	-	-
KPD (Communists)	-	2	23	11	16	24	24	29

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* Constitutional Assembly

in population. It exceeded it in the elections of July 1932 when practically everywhere in the Region about 25 percent more voters participated than in 1920. The interest dropped when elections were held for a second time in 1932 to replace the Reichstag elected in July and dissolved in September as it was about to vote no-confidence in the von Papen Cabinet.

Until after the election of 1920, the Independent Social-Democratic Party (*Unabhängige Sozialdemokratische Partei Deutschlands*) played an important role in the political structure of the Region, and in turn, the Region held an important place in the USPD's history. From 1919 to 1922, all of Braunschweig's Prime Ministers and most of the ministers were selected from the ranks of the USPD. This party had been created in 1917 by a secession of leftwingers and opponents of continuation of the war from the Social-Democratic Party (*Sozialdemokratische Partei Deutschlands*). When the war ended, dissension about general policies, and in particular about affiliation with the Moscow International led to a split at a party convention in Halle in October 1920. The majority of delegates joined the Communist Party (*Kommunistische Partei Deutschlands*). The minority merged with the SPD after a convention in Gera in September 1922.

As long as there was a competition from the USPD, the Communist Reichstag vote in the Region was weak. In the May elections of 1924 the KPD gained special strongholds in the District of Merseburg and Land Thüringen. In Thüringen, the KPD even entered the cabinet in 1923. One Communist became minister of justice, another one minister of economics, a third one was made a senator (*Staatsrat*). The Party felt it advisable for their own revolutionary plans to cooperate with the Social-Democrats in Sachsen and Thüringen "in order to unite the working classes for the defense against the fascist danger." At this time, a counterrevolution was threatening in Bayern. The experiment of purely socialist governments in Land Sachsen and Thüringen ended with the delegation of power to the *Reichswehr* by the national government under Stresemann. The *Reichswehr* forced the withdrawal of these state cabinets. On 12 November 1923 the Communist ministers in Thüringen resigned. Three days earlier the Beerhall Putsch of Hitler and Ludendorff had collapsed in Munich. After that time Thüringen's cabinet was in the hands of conservative civil servants and outspoken rightists. The two subsequent elections were less successful for the Communists. From 1928 on, the KPD gained steadily in all parts of the Region. It made followers among the members of the working class who were dissatisfied with the compromise policies of the Social-Democrats.

The Social-Democratic organization was strengthened in the Districts of Merseburg and Erfurt and Land Braunschweig through the merger with the USPD. However, the elections of 1924 reflect the fact that the SPD lost ground among the working classes because of its cooperation with the *Reichswehr*. Votes for the Social-Democratic Party reached a peak in the elections of the prosperity year 1928 when radicalism temporarily receded, and even the Communists paid only lipservice to revolutionary slogans. The SPD still accounted for the second largest number of votes - next to the Nazis - in the elections of 1932, although the SPD suffered a slight loss of votes everywhere in the November elections. Until the von Papen *coup* of July 1932, the presidents of the Prussian provinces of Sachsen and Hannover (Noske) and of the Government District of Merseburg were right wing Social-Democrats. With short interruptions, Anhalt had a socialist Prime Minister; and Braunschweig a socialist controlled cabinet until about 1930.

Enthusiasm for the new republic among the wider groups of the middle classes found expression in the early successes of the Democratic Party. It received more than 10 percent of the votes in such socialist strongholds as the districts of Magdeburg and Merseburg and the Land Anhalt through 1920. It declined rapidly afterwards.

Political developments were of little effect on the Center Party (*Deutsche Zentrums Partei*) in the Region. The number of votes remained on about the same level from 1919 to 1932. However, as everywhere in Germany, it never succeeded in reaching a majority of the Catholic votes.

For a while the *Wirtschaftspartei* (*Reichspartei des Deutschen Mittelstandes*) attracted some sectors of the middle class of the Region, people who had lost their savings in the inflation, and who later became easy prey for the demagogic promises of the Nazis. The final success of the Nazis caused the doom of the *Wirtschaftspartei*.

The development of the so-called Peoples Party (*Deutsche Volkspartei*) representing industrialists and sectors of the middle class in the Region also follows a national pattern. It lost votes steadily from 1924 to the July elections in 1932, first to the *Wirtschaftspartei*, later to the Nazis. Only the reaction against the Nazi success in the July elections resulted in slight gains for the DVP in November.

The Conservative Party (*Deutschnationale Volkspartei*) made major gains in the two 1924 elections especially among the "bourgeoisie" desillusioned by the republic, afraid of the radicalism experienced in 1923, inflation conscious, and clamoring for bygone days. It lost almost consistently until July 1932, and regained only little in November 1932.

Similarly, the Nazis (*Nationalsozialistische Deutsche Arbeiterpartei*) registered their first success among these dissatisfied and reactionary circles in May 1924. Their major success came in July 1932, at the time when unemployment had reached a peak: Germany had six million registered unemployed in January 1932. The total number was perhaps two million higher. The Labor Office Niedersachsen had about 330,000 unemployed registered around election time, Mitteldeutschland 500,000. Land Thüringen, where 424,000 people voted for the NSDAP, had 150,000 registered unemployed and 18,000 long-time unemployed already receiving relief after exhausting unemployment benefits. In Braunschweig, the Nazis received 156,000 votes when unemployed numbered about 50,000, those unemployed on relief 8,000. Anhalt's Nazis mustered 102,000 votes. This State then had 35,000 registered unemployed and an additional 7,000 already receiving relief. The Nazis concentrated their efforts on the smaller states and undoubtedly brought their followers to the polls to the last man. But, nowhere in the Region, as in most other parts of Germany, did they receive 50 percent of the votes in July 1932. The lower participation in November, and the more active propaganda of the other parties, which by now had come to realize the danger, resulted in losses for the Nazis. In the first elections conducted under the Nazi regime on March 5, 1933, the NSDAP received only 43.9 percent of the votes in the entire Reich. Their quota was slightly higher in the election districts belonging to the Region: Merseburg 46.4 percent, Thüringen 47.2 percent, Magdeburg 47.3 percent, and Braunschweig 48.7 percent. The results of the state parliament (Landtag), elections held simultaneously, were slightly more favorable for the Nazis: Anhalt 46 percent, Thüringen 47.6 percent, and Braunschweig 49 percent. But nowhere did the Nazis reach a majority of over 50 percent.

The Region set the stage for the entry of National

Socialists into leading roles of German administration: the former Reich minister Frick now "Protector" of Bohemia-Moravia started off as Thüringen's Minister of Interior and Education from 1930 to 1931. The present Prime Minister of Braunschweig, Klagges, also began as Minister of Interior and Education in 1931. Sauckel, now Reich Governor, and all-important Commissioner General of Labor Supply, became Prime Minister of Thüringen in 1932. The former Reich Minister of Education Rust represented the NSDAP in the city administration of Hannover in 1924.

No reliable data exist on political developments in the Region under the Nazi regime. Cells of resistance under trade unionist and socialist leadership have been reported, especially in Thüringen. It is safe to assume that such groups exist in individual factories and plants. As the collapse of the Nazis draws nearer, such movements may be able to form larger local and regional units. Thus, they may in the future serve as nuclei of an Anti-Nazi revolution.

C. Social Structure

1. Ruling Classes.

a. Government and Party Bureaucracy. Under the Weimar Republic, Social Democrats and other exponents of the Republic headed administrations in *Reich* and *Länder* for varying periods. There were few changes in the civil service on any lower level, including the judiciary. When the Nazis came to power they also retained most of the civil servants except on the highest level. In Thüringen and Braunschweig, the Nazification of the administration on the top had started before 1933 with the appointment of Nazi Ministers of the Interior in 1930. There are few features peculiar to the civil service in the Central Industrial Region, largely because during the existence of the Republic, civil servants could be freely transferred within a state administration.

The Nazi regime unified the civil service system and made it possible to transfer officials from one state to another. Similarly, only a few of the highest Party leaders in the region are natives of the region. The Gauleiter of Halle-Merseburg, Joachim Eggeling, was born in Blankenburg, saw military service ~~in~~ Hannover regiment, studied in Halle, has been a lessee of state land in the region for two decades, and has worked in the Party organization since its inception. Fritz Sauckel, Reich Governor (*Reichsstatthalter*) of Thüringen, came from Franconia, but began his work for the Party as a speaker of the Ilmenau District in 1922. Rudolf Jordan, Gauleiter of Magdeburg-Ahalt, on the other hand, was transferred from Hessen-Nassau in 1931. Hartmann Lauterbacher, Gauletier of Südhannover- Braunschweig, a Tyrolian, was a Hitler Youth leader, first in the Rhineland, and then deputy of the Reich Youth Leader (*Reichsjugendführer*) until 1940. The lower party bureaucracy, however, is in the hands of long-time residents of the region; quite a number of Party officials who began their careers in the region attained very high positions in the Party and government hierarchy: Bohemia's "Protector" Frick, the Reich Minister of Education Rust, the late Church Minister Kerrl, Secretary of State Koerner and many others.

b. Business Leaders. A few decades ago, the owners of the numerous medium-sized enterprises of the region may have represented its business leadership. There are still some leaders of this type such as W. A. Fahrenholtz of the Consolidated oil factories of Hubbe & Fahrenholtz in Magdeburg, who is President of the Economic Chamber for Anhalt, Magdeburg, and Merseburg, or Reinhold Thiel of the iron and steel firm of Gebr. Thiel GmbH in Weimar, who is president of its Chamber of Commerce.

In the course of the rapid industrialization of the region, many of the smaller firms were absorbed by or at least came under the control of giant corporations and combines from outside the Region, for example, the Petschek combine, I.G. Farben, or the Reichswerke Hermann Göring (See Section V). Thus, a good part of the business leadership of the region passed into the hands of anonymous functionaries. Examples of such leaders who are relatively little known although they are connected with large firms are Stephan Luther, director of MIAG (Mühlenbau and Industrie AG), chamber president in Braunschweig, and Johannes Mueller, a native of Raguhn, Anhalt, director of AGO airplane factories in Oschersleben and last chamber president of Dessau. In still other instances, leadership resits with officials of minor companies: the chamber president of Erfurt, for example, is a director of the Liability Insurance Fund for Motor Driving Civil Servants.

The list of business leaders in the region includes only a few better known names: Leader of the Economic Chamber for

Provinz Hannover and Land Braunschweig and Chariman of the board of Ilseder Hütte and director of Commerzbank is Ewald Hecker, the son of a Berlin banker. This former member of the German colonial service and imperial Rittmeister (captain of cavalry) was President of the Hannover Chamber of Commerce before Hitler came to power. The man who was until recently head of the Thüringen chamber represented a totally different type of leadership. Dr. Walter Schieber -- discoverer of Zellumin, an artificial leather, founder and chairman of the board of Thüringer Zellwolle -- was appointed by Sauckel to be the first head of the Gustloff Werke in Weimar and one of the German represenatives in France Rayonne S.A., and is a close collaborator of Minister Speer, and now works in his ministry. Schieber characterized his type of leadership in a speech given in December 1943 as that of a "political enterpreneur combining political interests with expert knowledge".

Some native business leaders of the region such as Thilo von Wilmosski, son of a former Landeshauptmann in Merseburg, and a former Landrat himself, exert influence far beyond the borders of its territory. He is a brother-in-law of the munitions magnate Krupp, and is director and board member of numerous Krupp-controlled enterprises in and outside the region

This diversity of types of leadership indicates that the regional business has no homogenous ruling group that can be counted as a political force.

c. Agrarian Leaders. Throughout the region, the majority of agricultural holdings are under 100 ha. (247 acres) in size, and thus do not exceed the size of a large peasant farms. The heads of the regional peasant organizations (Landesbauernführer), therefore, have the major influence.. These three men, who, incidentally, are all members of parliament, were born and reared in the Region. Hartwig von Rheden, the peasant leader of Niedersachsen-Hannover, is the scion of an ancient noble family of the Hildesheim area, dating back to 1251. He was educated in Goslar and Göttingen, served in the German colonies, and was a reserve officer in the imperial army. He operates a 450 ha. farm in Rheden, and is very active in peasants' education. His counterpart in Thüringen, Rudi Peuckert, has quite a different background. He is the son of a local peasant, and an SS and Hitler Youth Official whose birthplace and residence is Wiebelsdorff near Zeulenroda. He was active in early NSDAP activities in the county of Gera. The Landesbauernführer in Sachsen-Anhalt, Otto Lehmann, is relatively a newcomer to the Party, joining it in 1930. He is a peasant from Ströbeck near Halberstadt.

Another agrarian group is important in the region not because of any official position, but because of the size of holdings. The families of the former ruling princes of the region still hold large estates in it. Major parts of the Prince of ~~Stol~~berg-Wernigerode's 36,000 hectares, the Duke of Anhalt's 29,000 hectares and the Duke of Sachsen-Coburg-Gotha's 10,000 hectares are located in the region. The Duke of Braunschweig-Lüneburg, and the princes of Stolberg-Stolberg and of Stolberg-Rossla hold smaller estates. Some land in the region belongs to the Counts of Thiele-Winckler who have large interests in Silesia and whose forbear was one of the outstanding conservative leaders in imperial Germany. Other nobles who have larger agricultural estates here are the von Arnoms and von der Schulenburgs, old Brandenburg families. Of the various types of private holdings, Fideikommisse, entailed Junkers' estates, are especially numerous in Anhalt, 5 percent of the total agricultural and forest area against 1.9 on a Reich average. The political power of these families in the Region is far inferior to that of the larger group of East-Elbian Junkers. Only one of them exerts much influence -- the Prince of Stolberg-Wernigerode in Ballenstedt, owner of large forests and some mining areas in the Harz Mountains, is reportedly still being consulted on the conduct of affairs in his former territory.

The incidence of public holdings of agricultural land is higher in Braunschweig and Anhalt, particularly, than in the Reich. Some of this property may have been taken over from the former princes. Almost 27 percent of agricultural and forest land in Braunschweig, and 25 percent in Anhalt is in the hands of the Reich and States' government. While the forests are actually administered by the public administration, agricultural land is cultivated by lessees. As a group, they are politically and economically of no outstanding influence, although one of them, Eggeling, became Party gauleiter of Halle-Merseburg.

2. Middle Class. Now less than ever is there a clear cut border line between ruling and middle class. Some of the Nazi functionaries appointed to ruling positions in administration and business are typical exponents of the middle class.

a. Urban Middle Class. There is little unusual about the urban middle class in the region, its professionals, smaller businessmen and craftsmen. One fact, however, stands out -- the importance of so-called independents without occupation (selbständige-Berufslose). This group comprises people living on pensions, annuities, or their own capital, especially retired public servants and businessmen. They apparently selected pleasant towns in the picturesque sections of the Central Industrial Region as ideal places of retirement. In the census of 1939[1] a number of towns in the region showed a far higher proportion of "independents without occupation" than the Reich's average of 9.4 percent: Zellerfeld 21.0, Naumburg 20.7, Weimar 19.6, Halberstadt 17.1, Altenburg 16.2, and Gera 16.0.

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[1] The census combines this group with recipients of relief. The proportion of the latter, however, was particularly small in the region (see below under II, C, 3).

Other variations from the middle class pattern as it exists throughout the Reich are too slight to deserve description according to Employees' Social Insurance (Angestelltenversicherung) statistics, for instance, it seems that salaried employees, white-collar workers (Angestellte) earning less than 200 RM. a month are proportionately more numerous in Thüringen than the Reich average.

b. Rural Middle Class. Although all parts of the region have a predominantly urban population all - with the exception of Anhalt - have a proportionately higher rural minority than the Reich average. Most of the farmers in the region operate medium-sized peasant farms. More than half of the agricultural area of the region belongs to farms between 20 and 200 hectares. Many of these middle class farmers were subjected to Nazification by institution of entailed farms (Erbhöfe). To quite some extent limited inheritance in favor of the oldest son had been customary in the region in pre-Nazi times. The entailed farm legislation applied to farms of between 7.5 and 125 hectares owned by peasants of "aryan" stock. Entailed farms were protected against foreclosure, and could not be sold or mortgaged. This ban increased the land value, but the ban on new loans made the supply of working capital problematic. The proportion of agricultural area formed into entailed farms in Provinz Hannover is far higher than the Reich average and only slightly higher in Provinz Sachsen and Land Braunschweig. The ratio of entailed farms to the total number of farms is above the Reich average in the two Prussian provinces of the region. Hannover also held first place in the establishment of new peasants' settlements in 1939 and 1940. These new farms were organized by land settlement companies from reclaimed land or from parcels purchased from large estates. Special efforts were made to have these settlements take the form of entailed farms.

It may be assumed that the entailed farm system increased the Landflucht, the migration from rural areas into towns. On the other hand, many of the urban residents remained part-time farmers. Over 20 percent of all farms in the region were under one hectare in size in the 1933 census. These small farms were presumably in the hands of part-time farmers.

Since the Nazis have arduously promoted entailed farms, it is particularly interesting to find a high incidence of leased land (Pachtland) in the region. On a Reich average, 48 out of 100 farms had leased land in 1937. This may mean that the entire farm is leased, or, more often, that additional parcels are leased in order to round out the farm area. It may be leased from individuals, corporations, or -- particularly in the region -- from the public land (Reich, state, or community). Anhalt and Braunschweig with 78 and 73 percent lead all other territories of the Reich in this field. Provinz Sachsen with 62, and Provinz Hannover with 60, are also far above the Reich average (Thüringen 5.7 percent). Although the Nazi agrarian philosophy is generally opposed to leased land holdings, it is realized that leases of parcels (Zupacht) of land enable small holders to utilize family labor supply more effectively. Leased land also offers advancement possibilities for the capable peasant, and makes for "independent and intelligent men in the rural population".

For a few years under the Weimar Republic special political parties, representing the farmers in a rather reactionary direction, played a rôle in the political life of the region. Thüringen farmers, especially, were among the early followers of the Nazis.

3. Working Class.

a. Industrial Workers. In the last few occupational censuses, the Central Industrial Region had proportionately more workers in its population than did the Reich. The proportion of workers (*Arbeiter*) to the total number of gainfully occupied persons (*Erwerbspersonen*) in the 1939 census was 50.7 percent in the Reich, but 52.8 in Thüringen, 55.7 in Provinz Sachsen, 56.9 in Braunschweig, and 59.7 in Anhalt. Naturally, this large group had a correspondingly great political influence in the pre-Hitler period through the Socialist and Communist Parties. Since there are so few Catholics in the region, the Social Democratic Unions federated in the *Allgemeine Deutsche Gewerkschaftsbund* dominated the field. In 1929 more than 80 percent of Magdeburg's and Braunschweig's workers belonged to ADGB unions. Unionization reached especially the skilled workers, for example, in machine and precision instrument factories. Among semi-skilled workers, the metal and railroad workers were best organized. The least organized and least stable group were the unskilled. More recent census figures give no classification by skill. This classification is, of course, for instance, on a Reich average a skilled coal miner received an hourly wage of 1.04 RM. and an unskilled helper 60 *Pfennige.* In turn, wage statistics give some indication of social status. In 1938 almost 50 percent of all workers in Thüringen known to the Invalidity Insurance (*Invalidenversicherung*) had weekly wages of less than 25 RM., and only 38 percent earned over 30 RM. This may be explained by the fact that numerous highly skilled workers, particularly home workers, worked in trades such as woodcarving, which were no longer remunerative in competition with modern mass production industry. The picture for Provinz Sachsen and Land Anhalt was favorably reversed. Almost 50 percent of the workers earned over 30 RM. per week, and only 42 percent less than 25 RM. These territories may have had a higher proportion of skilled workers or a larger number of highly paid, possibly semi-skilled piece workers in specific industries.

In general, wages of the "lowest" class, unskilled workers or helpers, were fairly high in the Central Industrial Region in September 1941. The highest hourly wages of the Reich, 85 to 94 Pfennige, were paid to helpers in the metropolitan areas of Berlin, Hamburg, and Wien. The labor districts of Niedersachsen and Mittelelbe, which contain major parts of the region, follow with 80 to 84 Pfennige, and Thüringen with 70 to 79. The Statistische Reichsamt explains this phenomenon for Mittelelbe with the statement that the wage situation was favorable in brown coal and potash mining and in the new enterprises of the munitions industry.

b. Agricultural Workers. The census of 1939 revealed that throughout the Reich more than three-fourths of all agricultural workers were family members of the farmers. In Thüringen and Hannover the proportions were even higher, 83.6 and 80.3 percent, respectively. On the other hand, the ratios were lower for Provinz Sachsen with 69.1 percent, Braunschweig with 66.7, and Anhalt with only 60 percent. Correspondingly, the agricultural worker plays a more important role in the latter areas. The quota of children among the agricultural helpers was below the Reich average of slightly over one percent in all parts of the regions except Thüringen, where about four out of every hundred agricultural workers were under fourteen years of age. It can be assumed that most of these children worked on family-operated small farms. As a consequence of the large manpower demands of the war industries, the number of agricultural workers not belonging to the family of the farmers decreased in Thüringen by about 30,000 between the census of 1933 and that of 1939. On the other hand, the number of helping family members increased by almost 70,000.

The sugar beet area in the Central Industrial Region offers the special problem of migratory agricultural workers.

c. Relief Recipients. In June 1940 the incidence of public relief was less in all territories of the Region than the Reich average. With the growing manpower shortage still more "unemployable", went off public relief. In June 1940, out of 1,000 persons in the entire Reich, 17.7 were on public relief, but only 15.3 in Braunschweig, 15.0 in Provinz Sachsen, 13.2 in Provinz Hannover, 13.3 in Anhalt, and 10.0 in Thüringen.

TABLE 5. SOCIAL STRUCTURE (1939)

CENTRAL GERMAN INDUSTRIAL REGION

Agriculture, Husbandry, Gardening, Forestry, Fishery

	Deutsches Reich		Prov. Sachsen		Thüringen		Braunschweig		Anhalt	
	Total	Male Emp.	Total	Male Emp.	Total	Male Emp.	Total	Male Emp.	Total	Male Emp.
Self Employed	2,420,486	2,099,444	80,281	72,646	24,625	21,603	10,863	9,528	5,952	5,339
Family Helpers	5,782,334	1,160,620	219,999	35,006	67,497	11,039	30,197	3,989	14,809	2,398
Officials	19,309	19,302	689	689	260	260	244	244	124	124
Employees	89,550	78,212	6,176	5,342	761	666	660	548	593	518
Workers	2,535,837	1,548,825	170,607	94,561	21,579	12,568	26,803	14,121	17,594	9,656
Total	10,847,516	4,906,403	477,752	208,244	114,722	46,136	68,767	28,430	39,072	18,035

Industry and Crafts

	Deutsches Reich		Prov. Sachsen		Thüringen		Braunschweig		Anhalt	
	Total	Male Emp.	Total	Male Emp.	Total	Male Emp.	Total	Male Emp.	Total	Male Emp.
Self Employed	1,585,810	1,325,380	65,802	55,781	20,835	17,859	12,646	10,458	6,967	5,737
Family Helpers	325,501	27,545	18,382	961	6,638	1,044	3,022	156	2,309	107
Officials	31,017	30,427	799	796	168	168	239	239	115	112
Employees	1,846,255	1,318,538	83,886	64,099	21,779	16,021	15,822	11,908	16,833	13,083
Workers	12,715,458	9,966,213	626,312	511,505	180,249	132,068	107,045	91,362	79,651	70,011
Total	16,504,041	12,668,103	795,181	633,142	229,669	167,160	138,774	114,123	105,875	89,050

Commerce & Transportation

	Deutsches Reich		Prov. Sachsen		Thüringen		Braunschweig		Anhalt	
	Total	Male Emp.	Total	Male Emp.	Total	Male Emp.	Total	Male Emp.	Total	Male Emp.
Self Employed	1,342,658	1,005,940	56,035	44,066	13,744	10,706	9,706	7,402	6,214	4,576
Family Helpers	594,044	47,696	30,421	1,836	8,387	513	4,902	286	3,535	162
Officials	660,439	620,312	31,919	30,471	6,086	5,851	4,825	4,599	3,004	2,913
Employees	1,974,678	1,076,825	80,786	45,320	15,444	8,477	13,809	7,895	7,426	3,766
Workers	2,279,064	1,708,395	95,011	75,721	17,069	12,958	16,820	12,213	10,589	7,721
Total	6,850,883	4,459,168	294,172	197,414	60,730	38,505	50,062	32,395	30,768	19,138

TABLE 5 (Cont'd)

Public and Private Services

	Deutsches Reich Total	Deutsches Reich Male Emp.	Prov. Sachsen Total	Prov. Sachsen Male Emp.	Thüringen Total	Thüringen Male Emp.	Braunschweig Total	Braunschweig Male Emp.	Anhalt Total	Anhalt Male Emp.
Self Employed	329,604	250,540	13,611	10,647	3,423	2,647	2,388	1,894	1,427	1,136
Family Helpers	45,098	2,482	2,824	140	776	39	415	20	307	6
Officials	1,379,144	1,270,340	57,754	54,504	14,043	13,299	10,972	10,356	7,563	7,124
Employees	1,338,577	695,158	47,050	25,877	11,685	6,973	8,637	5,047	5,491	2,877
Workers	975,714	599,496	47,474	29,987	8,988	5,495	8,146	5,010	6,007	3,786
Total	4,068,137	2,818,016	168,713	121,155	38,915	28,453	30,558	22,327	20,795	14,929
Servants										
Domestic (Employees	20,602	1,036	977	38	176	10	155	3	141	7
Domestic(Work-	1,501, 116	14,06[illegible]	64,167	523	14,154	116	12,110	[illegible]4	8,595	61
Total ers)	1, 521,718	15,103	65,144	561	14,330	126	12,265	67	8,736	68
Total Employment										
Self Employed	5,678,558	4,681,304	215,729	183,140	62,628	52,815	35,603	29,282	20,560	16,788
Family Helpers	6,746,977	1,238,343	271,626	37,943	83,298	12,636	38,536	4,451	20,960	2,673
Officials	2,089,909	1,940,381	91,161	86,460	20,557	19,579	16,280	15,438	10,806	10,273
Employees	5,269,662	3,169,769	218,875	140,676	49,841	32,147	39,083	25,401	30,484	20,251
Workers	20,007,189	13,836,996	1,003,571	712,297	242,039	163,206	170,924	122,770	122,436	91,235
Total	39,792,295	24,866,793	1,800,962	1160,516	458,363	280,383	300,426	197,342	205,246	141,220

4. Composition.

Social categories into which the population is subdivided are different in the U. S. and Germany. American statistics differentiate only between gainfully employed workers and all others, German statistics segregate a third group listed as "economically independent persons without occupation", i.e., persons living on social security and old-age pensions as well as inmates of asylums, prisons, etc.

Distribution of population (percentage):

U.S.	1930	1940
Gainfully active workers	39.8	40.1
(non-active population) non-workers	60.2	59.9

Germany	1933	1939
Gainfully active workers	49.5	50.1
non-workers (non-active population)	8.9	9.4
dependents and independent p.	41.6	38.9
persons drafted in armed forces & labor service	[illegible]	1.6

Germans distinguish between resident and permanent population, a difference highly important because it gives an indication of the number of persons in army and labor service. Analysis shows the the proportion of unpaid family workers is very much higher in Germany than in the United States. There are manifold changes in the occupational classification due to the impact of NS policy and the Census of 1939 was influenced by the labor situation after the end of the depression. The figures show a higher percentage of wage and salary workers in Germany compared with the number employed in the United States. Notable is the number of self-employed (own-account) workers. In Germany 8.2 percent of the non-farm section belongs to the group of small-business owners and managers. It must be emphasized that the development of concentration and centralization of enterprises between 1925 and 1939 shows only a slight decrease of owners and even an increase after the annexation of Austria and Sudetenland. At the same time, the number of unpaid family workers who are always connected with small-scale enterprise, both in agriculture and industry, became the field of continuous growth. Allowances increased and pensions were widespread not because of improved living conditions, but because of changes in the age distribution. The losses of the last war and the regression of the birth rate explain the decline of the age groups which make up the bulk of the adult population able to work.

The number of unpaid family workers together with those supported adds up to 22.2 percent of the population of the old German Reich in 1939.

Statistics show that the category comprising all kinds of salaried workers, subdivided in the Census since 1933 into employees and officials, increased considerably; including dependents, this category represented 17 percent of the total population in 1925 and 17.4 percent in 1939, while during the same period the number of workers decreased slightly from 25.7 to 25.0 percent. The general increase in the number of inhabitants was exceeded only by the increase in the proportion of these white-collar people. With this general background, it is important to examine to what extent social changes manifested themselves in the different divisions of the economy. The general trend is evident in the decline of the share of agriculture within the general setup, although proportionally the percentage of industry declined also. This deficit is made up for by the increase in the proportion attributed to public service, namely party service. The increase in the category of civil servants in 1939 against 1933 was 23 percent; the number was 336,491 persons. It was higher even than the increase of employees in private service, which was 15.9 percent during the same time; their number was 624,039 in 1939.

Another point must be stressed. Not only is the proportion of the smallest establishments in Germany very much higher than in the United States, so that 90.9 percent of all enterprises are listed in the group employing not more than 5 persons as compared with 41.4 percent of the same group in the United States, but there is also a concentration of persons employed in these enterprises, one-third of all persons employed in Germany. Concentration affected the medium-sized group, thus enabling big enterprise to compete with enterprises of the same kind in England and the United States. However, enterprises with more than 50 wage earners were estimated at 13.9 percent of the 241,971 establishments in 1936.

German legislation and statistics deal with a special category: artisans. There is a political tendency to introduce this concept related to the idea of personal craftmanship instead of mechanized and standardized factory work. Artisan shops, one-man shops, predominantly, are distinguished from small business or small-scale industry. They registered with artisan chambers and had to fulfill certain requirements. This category is subdivided into owners (masters), wage earners, and apprentices, and into artisans and artisans in industrial enterprises. In connection with the rearmament program different kinds of artisans and repair men were required in large-scale industry or had to be entrusted by subcontracts with the finishing of products. The decline of consumer goods affected large sections of the artisan economy. All combing-out measures since 1938 aimed at the extermination of one-man shops, superfluous for the totalitarian war, and the securing of their skilled labor for large war plants. Shortage of raw materials and scarcity of labor forced the authorities to order a close-down, e.g, in the shoemakers trade, the masonry, upholsterer, and house-painter enterprises. Cigarette making was subjected to special authorization. Fritz Sauckel, the General Deputy for Labor Supply ordered on 27 January 1943 a registration of all residents not yet in full-time gainful employment, a measure which affected retail trade and restaurants more than artisan shops. Rationalization measures forced small business to technological improvements, concentration in larger units, and workbench extension in order to fulfill the scattered orders (Auftragstrennung) of the war industry.

5. Government, Associations and Groups.

. National Socialism, having swept into power with the active support of small business, was expected to give tangible proof of gratitude. National Socialist small-business groups, the so-called "fighting associations of the industrial middle class" (Kampfbünde des gewerblichen Mittelstandes) that had sprung up in great numbers during depression years, immediately went into action, trying to take the law into their own hands. Such groupings as department, chain, and five-and-ten-cent stores which might have been expected to oppose small business were considered by the Nazis their political enemies because they were deemed to be dominated by "Jewish" or "Communist" interests. Local Party groups in collaboration with the NS. Hago (Nationalsocialistisches Hauptamt für Handwerk and Handel), under which name the "fighting associations" had united to become a part of the official Party machinery, through methods of boycott and coups de main attempted to establish a fait accompli which the government authorities would then have to abide by. Thus, the government authorities had to cope with overzealous friends as well as enemies.

The fight against the big retail enterprises, taken up with such vigor by the NS. Hago, was but partially successful. A special Reich Commissioner for Small Business was appointed in the person of Dr. Wienbeck, a former artisan representative in the German Nationalist Reichstag group. But his functions were to temporize and tranquilize the small-business community rather than to prepare ways and means to fulfill the middle-class program.

Meanwhile, Government policy moved forward on paths already traced in the 1932 decrees. Prior to 1933 rapid advances had been made especially by five-and-ten-stores. They had trippled their sales in the 1928-32 period, and the rapid decline in the consumers' purchasing power shifted mass buying toward their low-cost and low-quality assortments. Not only did the prohibition of new five-and-ten stores now become final, but the same restrictions imposed upon them were made to apply also to consumer cooperatives. Refreshments were no longer to be offered in five-and-ten and department stores, and the stores were ordered to close down certain service departments where artisan labor prevailed.

On 21 March 1934, a kind of armistice between the N.S. Hago and the Reich Commissioner for Consumer Cooperatives was concluded. Consumer Cooperatives renounced campaigning for new members and the N.S. Hago promised not to take any further action against them. Rudolf Hess, as the representative of the Führer, confirmed the binding character of this armistice on 9 July 1934.

The official retail organization is of a comparatively simple nature. It forms a branch of the Reich Group "Trade" to which also belong wholesale and foreign trade, hotels and restaurants, itinerant trade, salespeople and commercial travelers and representatives. The Reich Group "Trade", in turn, belongs--as does the Reich Group "Artisans"--to the Estate of Trade and Industry.

A glance into the directory of the official trade "groups" and their subdivision shows that the personnel, presidents as well as managers, are in many cases identical with those of the corresponding free associations of the Weimar period. Only the peak corporation, which comprised 537,159 compulsory members during 1936-37, functions under completely new leadership. Its first president, Franz Hayler, as well as the present one, Professor Lüer, owe their appointments to close connections with the ruling party.

On the regional basis retail trade took part in activities of the local chambers of industry and commerce. These chambers, which include all industrial and trade units of a given territory, with the exception of the artisans, nummbered 111. A decree of 20 April 1942 has abolished forty-one of these chambers. The remaining ones have been incorporated as special branches into the new system of district economic chambers (*Gauwirtschaftskammern*) which were established in each district of the National Socialist Party.

The organizations of the artisans, on the contrary, has lost nothing of the bewildering complexity it had under the Weimer Republic. However, most of these organizational schemes exist only on paper, as the domination of a Nazi-appointed artisan bureaucracy is apparent at every new organizational level. The local artisan corporations, the compulsory character of which has been discussed, form the foundation of the whole structure. They number about 16,000. Corporations of individual trades form Reich Associations of Corporations (*Reichsinnungsverbände*), numbering fifty-one in 1936. Reich Associations in turn make up the Reich Estate of German Artisans, one of the seven Reich Estates. Local corporations of all trades formed regional artisan chambers (*Handwerkskammern*), numbering seventy-one in 1941. The artisan chambers seem to have formed the backbone of the local artisan bureaucracy. Yet by decree of 20 April 1942 (see above) artisan chambers were abolished and their functions transferred to the forty-two district economic chambers.

The corporations within the region form 750 country associations of corporations (*Kreishandwerkerschaften*). On the national level the districts form the Federation of Artisan Chambers (*Deutscher Handwerkskammer- und Gewerbetag*). This structure is the same, in a more or less disguised form, as in pre-Hitler days. A radical change has taken place in only one decisive point. The principle of self-administration, as it was supposed to be carried out under discreet government supervision of financial activities of the corporations without any interference with their social and political activities, has given way to the strictest government control in all fields. The old personnel has been removed and replaced by trustworthy Party members to a much higher degree than in the corresponding organizations of trade and industry. This may be partially due to the fact that competition for administrative jobs, which in one way or another brought handsome rewards, was much keener among the artisans than among merchants and industrialists.

The Führer principle is now carried through on all levels. The Reich Artisan Master (Reichshandwerksmeister), who is at the same time vice-regent of the Reich Economic Chamber, is appointed directly by the government. He presides over and directs the work of the German Artisan Chamber. Regionally, this bureaucratic artisan Führer is represented by fifteen equally bureaucratic provincial deputy masters (Landeshandwerksmeister), and on the lower and lowest level by 750 regional and thousands of local masters (Kreishandwerksmeister, Ortshandwerksmeister). The directors of the meanwhile defunct artisan chambers were also direct government appointees. They, in turn, selected the chairmen of the local corporations (Obermeister). The chairmen of the local corporations appoint officers and advisers (Innungswart, Innungsbeirat), whose functions are practically those of mere consultants. Corporation and chamber assemblies have completely degenerated and have been deprived of all their functions.

Organizations which care for the well-being of the artisan are, on the local level, concentrated solely in the hands of the local artisan master (Ortshandwerksmeister). He is the representative simultaneously of the Party and of the Labor Front for artisan questions; he represents the artisan chamber as well as the regional master. In other words he appears to the local artisan as the sum total of the ruling artisan bureaucracy.

Artisan apprenticeship is still of considerable importance. But it seems that the corporations most important task centers around the policy of admission to the craft, an issue which became of major importance with the introduction of compulsory master examinations in 1935. In 1931 only about 30 percent of all artisans had undergone master examinations. As to the remaining 70 percent, the decree of 18 January 1935 required examination of only a minority--only of those who had registered after 3 December 1932, and at that time were under thirty-five years of age. For newcomers, however, examination requirements were rigidly enforced. Without successful examinations no registrations were effected and no artisan cards, which alone permitted the exercise of a craft, were delivered.

The old controversy as to which of the so-called auxiliary enterprises (Handwerkliche Nebenbetriebe) should belong to the industrial or commercial and which to the artisan sector seemed at first to have ended with a clear-cut artisan victory. Section 2.2 of the decree of 18 January 1935 classified auxiliary artisan enterprises as belonging to the artisan category, provided that artisan work formed a regular part of their activity.

No compulsory social insurance for artisans existed either under the Republic or before. Artisan corporations were at liberty to build up a system of sickness benefit insurance; besides, several entirely voluntary artisan insurance organizations extended their activity to old age and invalidity. Compulsory old-age insurance for all independent artisans was not instituted prior to the statute of 21 December 1938, which went into effect 1 January 1939.

This new insurance branch was incorporated into the existing employee insurance organization. Unlike the employee, however, for whom the employer pays half the premium, the artisan has to pay the whole amount himself, without any additional government contribution. The amount to be paid is calculated on total income, not on artisan income only. For an income of 100 to 200 RM. monthly, the premium averages 8 RM. The maximum premium was 25 RM. for an income in excess of 500 RM. monthly.

D. Religious Stratification

The Central Industrial Region has been the scene of a variety of religious reform movements. The leader of the Anabaptists in the 16th century, Thomas Muentzer, was a son of the region. The most important religious movement in the region was the German reformation. Luther's life reads like a list of the region's cities: he was born and died in Eisleben, educated in Mansfeld, Magdeburg, Eisenach, and Erfurt, taught at the University of Wittenberg, and spent his "exile" in Eisenach's Wartburg. At the turn of the 17th century, the University of Halle became the center of Pietism.

Since the Reformation, the region has been overwhelmingly Protestant. The Catholics retained only two major enclaves, the so-called Eichsfeld around Heiligenstadt and, to a lesser extent, the Erfurt area, two units formerly belonging to the political territory of the Archbishop-Elector of Mainz. Most of the Jewish settlements in the region are little more than a century old. Only a few Jewish communities, such as Bernburg in Anhalt, were important in the 18th century.

There seems to be a close connection between the religious and the political development of the region. Membership in the Social-Democratic and Communist Parties may account for the great number of people--2,500,000--who indicated no religious affiliation in the census of 1933. The increase in the number of Protestants and Catholics in the 1939 census is to some extent explained by the general increase in population. The ranks of the Protestants, especially of their Nazi sects, probably included by 1939 persons formerly without religious affiliation. The Census publications include the "Deutsche Christen" under the members of German Evangelic "Landesoder Freikirchen". The Landeskirchen, especially in

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Thüringen, are Lutheran, while a Free Evangelic church exists in Hannover.

The Catholics gained in the region by the influx of industrial workers from other sections of Germany, and also by the revival of religious interest of Anti-Nazis. The use of foreign workers in the industries of the region since 1939 presumably added to the importance of the Catholic minority.

The decrease of the number of "Gemeinschaftlose" (persons with no religious affiliation) from 1933 to 1939 by one-half in the provinces of Sachsen and Hannover and Land Braunschweig, and by two-thirds in Thüringen and Anhalt, is balanced by the gains of the two major churches and of a new group, recorded for the first time in the census of 1939, the so-called "Gottglaubige" (Believers in God). The number of followers of this type of Neo-Paganism in the region is far in excess of the Reich's average: in Provinz Sachsen with 116,000 and Land Anhalt with 15,000, their ratio to the total population was more than twice as high as in the Reich; in Thüringen with 99,000, and Braunschweig with 31,000 over three times as high.

The census figures of 1939 do not show the final results of the Nazi campaign to destroy German Jewry. At the time of the census (May 1939) a great number of Jews who were fortunate enough to find asylum outside Germany had emigrated, but the wholesale deportations which finally resulted in the practical extermination of the Jews in Germany had not yet started on a major scale. Their varying rates of decrease in the different units of the region are, therefore, of only minor historical importance.

For detailed statistics on religious distribution see Table. 6.

TABLE 6. RELIGIOUS DISTRIBUTION OF POPULATION
CENSUS OF 1933 and 1939

Selected Provinces and States	Total Population (In Thousands)		Selected Religious Groups (In Thousands)							
			Protestants		Catholics		Jews		Without religious affiliation	
	1933	1939	1933	1939	1933	1939	1933	1939	1933	1939
Total Reich	66,029	78,072	41,080	41,096	21,760	31,419	503	308	2,442	1,198
Provinz Sachsen	3,400	3,549	3,001	3,050	251	305	7.1	2.5	129	53
Provinz Hannover	3,368	3,406	2,785	2,721	486	543	12.6	5.5	74	35
Land Thüringen	1,660	1,714	1,486	1,502	45	64	2.9	1.7	113	36
Land Braunschweig	513	569	454	461	22	52	1.2	.4	33	19
Land Anhalt	364	421	321	368	13	27	.9	.3	25	7

E. Education

The fact that Preussen has two administrative levels, provincial and district, that do not exist in the administrative structure of the other German states explains the differences in the administration of education on the regional level. Preussen's universities and colleges are administered directly by the Reich Ministry of Education. Secondary schools are under the jurisdiction of the Department of High Schools of the Provincial Presidents, and elementary and vocational schools of all types are administered by the School Department of the District Presidents (see II, A, 1, b, above). The District Government in Magdeburg includes a senior government councilor (Oberregierungsrat) in charge of vocational training; another is in charge of agricultural schools also for the districts of Merseburg and Erfurt. Similar arrangements are made in the district of Hildesheim of Provinz Hannover. In Thüringen and Braunschweig the ministries, and in Anhalt the Department of Education, handle the affairs of all schools, primary and secondary, and colleges, alike, although in separate ministerial departments. On the local level, the administration is in the hands of City School Councilors (see II, A, 1, d, above) in urban areas, and County School Councilors (see II, A, 1, c, above) in rural areas.

Maintenance costs are met by the administrative unit that operates a school--municipality or federation of municipalities, province, or state. Salaries are paid in Preussen by the provincial administration, in other states by the state government. Students in secondary schools, trade schools, and colleges have to pay tuition.

The Nazis accomplished a complete break with tradition in the field of university administration. They destroyed the proverbial academic freedom that existed in the self government of universities. In pre-Hitler Germany, the state's right with regard to university administration was limited to mere supervision through curators. Teaching methods and curricula were autonomously regulated by the universities. They recruited to a large degree their own replacements and appointed lecturers and instructors to their faculties. Rectors and deans were elected by the professors and had the position of "primus inter pares." In Nazi Germany, university personnel is no longer elected, but has been replaced by a Nazi-controlled hierarchy of appointed officials. The leadership principle prevails. The Minister of Education, with the consent of the Party Gauleiter, appoints the rector. The rector appoints the deans of faculties. The leader of the university instructors (Dozentenschaftsführer) is appointed by the Minister of Education with the consent of the Party Gauleiter. The leader of students (Studentenschaftsführer) is appointed by the rector with the consent of the national and regional Nazi student leaders. The rector, the deans, the leaders of instructors and students, and two additional professors form the university Senat, a purely advisory body.

There are two universities in the area of the region, Martin Luther University of Halle-Wittenberg, and Friedrich Schiller University in Jena. Braunschweig is the seat of Carolo-Wilhelmina Institute of Technology, Köthen of an engineering school, and Weimar of colleges of architecture, fine arts and crafts, and of music. There is a Prussian Mining Academy in Clausthal. Halle, Jena, and Braunschweig have Administration Academies. In Braunschweig are also Bernhard Rust Teachers College and a police school. Protestant theological seminaries exist in Eisenach, Sondershausen, Wittenberg, and Wolfenbüttel.

Moreover, there are a variety of educational institutions of the Nazi Party in the region. The Adolf Hitler schools, of which one is in Weimar, are secondary schools for selected Hitler Youth members who are granted Party scholarships. The National Political Institutes in Ballenstedt, Köthen, Naumburg, and Schulpforte took the place of the Imperial *Kadettenanstalten*; they prepare for Party, government, and military careers. Nazi Youth leaders are trained at the Braunschweig Academy for Youth Leadership. SS officials receive their indoctrination at the *SS Junkerschule* at Braunschweig. The Training Castle (*Schulungsburg*) of Lobeda near Weimar provides short indoctrination courses for Junior Leaders of the German Labor Front.

Nazi piracy is evident in the conversion of world-famous German institutions of learning into instruments of Nazi indoctrination. One of the oldest German humanistic schools--a school noted for its traditions and the great number of outstanding Germans among its graduates, the Protestants convent (*Klosterschule*) of Schulpforta, was transformed into a *Nationalpolitisches Institut*. The leading school in the field of German progressive education, the boarding school of Wickersdorf, was converted into a *Heimschule*. The Nazis established this type of school for children who could not have sufficient education at home, children of war workers, soldiers, Party officials--particularly children of officials employed in the administration of the conquered territories in the East, children of "racial Germans" (populations of territory formerly not belonging to Germany), and presumably also children of anti-Nazis, needing an especially thorough Nazi indoctrination.

Secondary schools and advanced trade schools of all types are listed in the *Taschenbuch für Verwaltungsbeamte 1943*, p. 337 ff. Noteworthy among the advanced trade schools is that for opticians, in Jena. Elementary schools in municipalities with a population of 50,000 or more are listed in Die Volksschulen im Deutschen Reich 1937, Statistik des Deutschen Reichs, vol. 520, p. 90 ff.

Other media of education such as museums and archives are too numerous to mention. A complete list of these institutions will be found in the Minerva Jahrbuch der Gelehrten Welt. The preservation and protection of monuments is among the activities traditionally considered part of the autonomous administrations (see II, A, 1, b, above) of the Prussian provinces. Provincial Commissioners of Conservation are in Hannover and Halle; Weimar has a State Office of Conservation (Landesamt für Denkmalspflege und Heimatschutz). Similar offices exist in Braunschweig and Dessau.

F. Social Insurance

The basic structure of the German social insurance system--as it had developed since the '80's has been maintained under the Nazi regime, except that unemployment insurance has been abolished. There are now three main branches of social insurance in Germany: (1) Sickness insurance (Krankenversicherung), which includes maternity and temporary disability insurance; (2) Accident insurance (Unfallsversicherung); and (3) Pension insurance (Pensionsversicherung). In addition to social insurance, non-profit, voluntary organizations provide protection against the economic risks of sickness.

The Reich Insurance Office (Reichsversicherungsamt), under the Ministry of Labor, is at the same time the supervisory authority and the supreme court of appeal. The power of supervision at lower levels, is vested in the Versicherungsamt which has also limited judicial functions. Between the Reichsversicherungsamt and the Versicherungsamt is the Oberversicherungsamt which enjoys certain judicial powers at the level of the district (Regierungsbezirk).

The Nazis have abolished all self-governing organization, such as committees, and have reorganized control on the basis of the leadership principle.

1. Sickness Insurance.

Sickness insurance is administered by sickness funds (Krankenkassen). They are organized primarily on a territorial basis, e.g., in the Stadt- and Land Kreise. In general, each Landkreis has a Land Health Insurance Fund (Landkrankenkasse) for agricultural workers. Stadtkreise and independent cities have Local Health Insurance Funds (Ortskrankenkassen) for non-agricultural workers. In addition, there are special guild funds (Innungskrankenkassen), established on a local basis for small entrepreneurs and their employees: industrial funds set up by industrial corporations with more than 150 employees, and separate funds on a national basis for both seamen and miners. The Miners' Health Fund is administered jointly with the Miners' Pension Funds by the *Reichsknappschaft*. Finally, there are a number of special organizations (*Ersatzkrankenkassen*) much like mutual insurance associations, which have secured for their members the right to exemption from insurance with the official *Krankenkassen*. The *Betriebskrankenkassen* and the *Ortskrankenkassen* lead in numbers. However, in terms of members, the *Ortskrankenkassen* play the most important role.

2. *Accident Insurance.*

Accident insurance is organized in two ways. It is established for special types of industry or occupation and then administered by occupational insurance societies (*Berufsgenossenschaften*); or it is set up by public authorities such as the Reich, the Länder, the cities, or public enterprises such as the German National Railroad (*Reichsbahn*) to cover certain of their own activities. Insurance of the latter type, i.e., set up by public authorities or enterprises, is called *Eigenunfallversicherung*.

3. *Pension Insurance.*

Pension insurance is of four types: (1) Workers' Invalidity, Old-Age, Widows', and Orphans' Insurance (*Invaliden- und Altersversicherung*); (2) Salaried Employees' Invalidity, Old-Age, Widows', and Orphans' Insurance (*Angestelltenversicherung*); (3) Miners' Pensions Insurance (*Knappschaftliche Pensions-Versicherung*); (4) Independent Craftsmen's Invalidity, Old-Age, Widows', and Orphans' Insurance (*Altersversorgung des detuschen Handwerks*). For the administration of the first system there are regional insurance offices (Landesversicherungsanstalten) covering the area of a state or province. The pensions fund for salaried employees is administered centrally for the whole Reich by the Reichsversicherungsanstalt für Angestellte. Miners' pensions are administered by the Reichsknappschaft although administration of direct services is decentralized and carried out by regional branches (Bezirksknappschaftsvereine).

The German social insurance funds, with the exception of accident insurance funds, are operated on the contributory principle, with employers and employees sharing the costs. There are no statutory contributions from the State to costs of either administration or benefits, although there are some exceptions to this rule, particularly in the field of pension insurance. The Reich has been forced to make non-statutory benefits from time to time. Major benefits include: (1) personal services for prevention and treatment of sickness, and care in maternity; (2) cash benefits for compensation for loss of income in case of temporary disability and maternity; (3) pensions in case of permanent disability and old age; (4) funeral benefits; and (5) allowances to dependent survivors of "breadwinners." In normal times all branches of social insurance were required to have reserves for contingencies. It is highly doubtful whether such reserves are still available.

III. HEALTH AND SANITATION

A. Organization and Administration of Tax-supported Health Services

The general supervision of all tax-supported health services in Germany is vested in the Reich and Prussian Ministry of the Interior, which, through a ministerial director, directs activities at all the lower administrative levels. The state and provincial authorities which employ medical administrators, receive their instructions from the ministerial director. In Preussen, the instructions are then passed on to the Regierungspräsident who is assisted by a medical administrator (Regierungs-und Medizinal Rat). These authorities supervise the state health officers (Amtsärzte) in charge of local administrative units -- the Kreise. As a rule, every Kreis and independent city has an official health agency (Gesundheitsamt). One Gesundheitsamt may have jurisdiction over several Kreise as indicated in table 7 , which lists the health offices in Central Germany.

Prior to 1933, many cities and a number of counties, primarily in the western part of the country, had had a system of local government health officers, the Kommunalärzte, who headed the health departments of these local administrative units. Some of them were full-time administrators but most were employed in direct service, at least part-time. The medical administrator's work was carried out under the direction of the Landrat in rural areas and the Bürgermeister in urban areas. Under the Nazi regime, many of these local government offices were placed under the direction of state health officers.

The functions of the health officers vary greatly, depending on the type of organization.

The Amtsarzt is by far the most important figure in the whole administrative scheme. He must maintain close relations with the local authorities. The Amtsarzt must be a licensed physician, is required to pass special examinations, and must have practiced

Table 7. HEALTH OFFICES IN CENTRAL GERMANY, 1 OCTOBER 1938

Seat of health office	Area serviced (sq. km.)	Population served	Administrative district served
Reg.-Bez. Magdeburg			
Burg	78		Stadtkreis Burg und Kreis
	1,280	83,000	Jerichow I
Calbe	538	112,000	Kreis Calbe
Halberstadt	61	50,000	Stadtkreis Halberstadt
Magdeburg*	128	307,000*	Stadtkreis Magdeburg
Magdeburg	680	53,000	Kreis Wolmirstedt
Oschersleben	505	61,000	Kreis Oschersleben
Quedlinburg	78		Stadt-und Landkreis
	324		Quedlinburg und
	53	103,000	Stadtkreis Aschersleben
Wanzleben	504	67,000	Kreis Wanzleben
Wernigerode	731	75,000	Kreis Wernigerode
Reg.-Bez. Merseburg			
Bad Liebenwerda	794	80,000	Kreis Liebenwerda
Bitterfeld	691	105,000	Kreis Bitterfeld
Delitzsch	755	85,000	Kreis Delitzsch
Eisleben	18		Stadtkreis Eisleben und
	574	107,000	Mansfelder Seekreis
Halle*	49	209,000*	Stadtkreis Halle a. S.
Halle	489	94,000	Saalkreis
Mansfeld	500	61,000	Mansfelder Gebirgskreis
Merseburg	23		Stadtkreis und Landkreis
	552	126,000	Merseburg
Naumburg a. S.	16		Stadtkreis Naumburg a. S. und
	563	73,000	Kreis Eckartsberga
Querfurt	683	73,000	Kreis Querfurt
Sangerhausen	771	75,000	Kreis Sangerhausen
Torgau	990	61,000	Kreis Torgau
Weissenfels	19		Stadt-und Landkreis
	624	142,000	Weissenfels
Wittenberg	24		Stadt-und Landkreis
	803	81,000	Wittenberg
Zeitz	9		Stadt-und Landkreis
	257	75,000	Zeitz
Reg.-Bez. Erfurt			
Erfurt*	49	145,000*	Stadtkreis Erfurt
Erfurt	569	62,000	Kreis Weissensee
Heiligenstadt	435	49,000	Kreis Heiligenstadt
Langensalza	419	40,000	Kreis Langensalza
Mühlhausen	64		Stadt-und Landkreis
	397	81,000	Mühlhausen
Nordhausen	22		Stadtkreis Nordhausen und
	669	105,000	Kreis Grafschaft Hohenstein
Worbis	442	48,000	Kreis Worbis
Reg.-Bez. Lüneburg			
Gifhorn	1,642	62,000	Kreis Gifhorn
Reg.-Bez. Hildesheim			
Osterode a. Harz	388	49,000	Kreis Osterode a. Harz
Peine	386	54,000	Kreis Peine
Clausthal-Zellerfeld	535	28,000	Kreis Zellerfeld

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* See following page for footnote.

Table 7 (continued).

Seat of health office	Area serviced (sq. km.)	Population served	Administrative district served
Thüringen			
Altenburg	17	44,000	Stadtkreis Altenburg
Altenburg	473	91,000	Landkreis Altenburg
Apolda	17	28,000	Stadtkreis Apolda
Arnstadt	27	22,000	Stadtkreis Arnstadt
Arnstadt	752	91,000	Landkreis Arnstadt
Eisenach	25	45,000	Stadtkreis Eisenach
Eisenach	1,173	101,000	Landkreis Eisenach
Gera	48	84,000	Stadtkreis Gera
Gera	753	95,000	Landkreis Gera
Gotha	48	48,000	Stadtkreis Gotha
Gotha	998	106,000	Landkreis Gotha
Greiz	49	40,000	Stadtkreis Greiz
Greiz	373	52,000	Landkreis Greiz
Jena	47	58,000	Stadtkreis Jena
Schleiz	684	50,000	Landkreis Schleiz
Sondershausen	807	73,000	Landkreis Sondershausen
Stadtroda	961	88,000	Landkreis Stadtroda und Kreisabt. Camburg
Weimar	38	49,000	Stadtkreis Weimar
Weimar	1,288	103,000	Landkreis Weimar
Braunschweig			
Blankenburg	475	39,000	Kreis Blankenburg
Braunschweig (Stadt)*	33	167,000*	Kreis Braunschweig
Braunschweig (Land)	511	39,000	Kreis Braunschweig
Gandersheim	534	52,000	Kreis Gandersheim
Helmstedt	800	79,000	Kreis Helmstedt
Wolfenbüttel	736	87,000	Kreis Wolfenbüttel
Anhalt			
Ballenstedt	330	32,000	Landkreis Ballenstedt
Bernburg	356	96,000	Stadtkreis Bernburg und Landkreis Bernburg
Dessau	749	79,000	Stadtkreis Dessau
Köthen	713	94,000	Landkreis Dessau-Köthen
Zerbst	808	64,000	Landkreis Zerbst

* All health offices are state-controlled with the exception of those marked with asterisks, which are operated by cities.

medicine for at least five years. He must also prove the Aryan descent of himself and his wife. Similar qualifications are required of the other full-time medical personnel in the health office. The major functions of the Amtsarzt include: (1) advising the administration in all health matters; (2) enforcement of all statutes pertaining to health matters; (3) supervision of the district as to health conditions and health activities, both official and non-official; in particular, supervision of all health personnel, medical and non-medical; pharmacies; facilities for the care of the sick; preventive health services; industrial hygiene (limited in extent) and sanitation; (4) control of communicable diseases; (5) development and promotion of physical education and (6) development and promotion of eugenic measures.

The Amtsarzt employed in executive position by a city or county is responsible for carrying out all activities assigned to the office by law or local ordinance, usually on the basis of an agreement with the state health officer as to division of functions.

B. Health Services under Social Insurance

The social insurance system is the backbone of the health services for the German people. It covers the following hazards: (1) sickness and maternity, including temporary disability; (2) accidents (industrial, farm, and sea); and (3) permanent disability and old-age.

By 1940 sickness insurance covered approximately 23,000,000 persons plus their family dependents, or close to two-thirds of the population. It provides for fairly complete medical care, including such services as physicians' care by both general practitioners and specialists, dental care, home nursing and midwife care, hospitalization up to a certain limit of time, drugs, and certain medical appliances.

Professional services are usually organized on the basis of private practice of medicine and free -- although not unlimited -- choice of physician. The system as operated during the best years of the Weimar Republic was rather satisfactory as far as scope of service was concerned, but left considerable room for improvement in regard to organization of professional services and over-all administration.

Present figures on accident insurance coverage are lacking, but shortly before the war there were approximately 25,000,000 persons covered. The services are inclusive inasmuch as all necessary treatment and care are provided -- usually through designated, specially qualified physicians and hospitals, rather than through any professional person or hospital.

Shortly before the war, workers' pension insurance covered approximately 20,000,000 persons, pension insurance for salaried employees approximately 5,000,000, and other schemes an additional 2,000,000 persons. Medical care under pension insurance is, of course, a relatively minor feature. However, the organizations in charge have been most active in promoting preventive health services by regular subsidies to the communities, and by paying large sums for preventive treatment of eligible persons.

The health services provided by the various branches of the social insurance system are unequal in both quality and quantity. Their administrative organization has been, and is, badly in need of revision.

C. Medical Care Facilities

There are three main types of hospitals in Germany. According to type of control they may be classified as follows:

1. Public Facilities.

a. City, County, and Provincial Hospitals. Almost all cities, and counties and all provinces have hospitals of their own. In some instances they are used for teaching purposes. The bed capacity in such hospitals accounts for the greater part of the total available to civilians.

b. State-Controlled Hospitals Connected with Universities. As a general rule the hospitals affiliated with medical schools are state-supported. In the Central Industrial Region, hospitals of this type are located in Jena and Halle. These medical centers service the surrounding areas to a large extent.

c. Facilities Maintained by Social Insurance Institutions. A considerable number of organizations, primarily those responsible for pension insurance, maintain a variety of special facilities such as tuberculosis sanatoria and convalescent homes.

2. Nonprofit Voluntary Hospitals. There are many hospitals which are operated on a nonprofit basis and supported by church or non-sectarian organizations. They furnish less than 30 percent of the total number of beds available to the civilian population. All are strictly supervised by state authorities and must conform to state rules and regulations. Usually they accept patients without regard to pay status.

3. Proprietary Hospitals. There are hospitals run for profit but most of them are small. They furnish about 6 percent of all hospital beds. Their building and operation are subject to strict regulations.

The hospitals receive the greater part of their income from insurance funds. Over one-half of the hospitalized patients are members of social insurance organizations and an additional fraction belong to voluntary health insurance plans.

Since 1939, there has been an ever-increasing shortage of hospital accommodations in Germany. The authorities have the power to commandeer up to 60 percent of hospital beds wherever necessary in an emergency, and there is evidence that this imposes great hardships on the civilian population. To increase facilities in the face of Allied air attack, temporary hospitals have been set up; additional hospital services have been established in the basements of overcrowded hospitals; emergency hospitals have been provided in schools, hotels, and similar buildings; and so-called "escape hospitals" (Ausweichkrankenhäuser) have been organized in regions believed to be least exposed to air-raid damage.

One-story hospital "bunkers," said to hold an average of 300-500 patients, have been constructed. "Bunker" facilities completed in November 1943 were reportedly concentrated in the western and northwestern parts of Germany, and an extension of the program designed to cover the rest of the country was said to be in preparation.

A list of the number of hospitals and hospital beds in each town in the Central Industrial Region is given in table 8. Towns close to the area delimited for this study have been included, since their facilities contribute to the service in the area under consideration. There are many health resorts in central Germany and these offer ample space in various facilities which can be easily adapted to hospital needs. Some spas have hospitals, sanatoria, and convalescent homes in connection.

D. Medical Personnel

The number of health personnel available to the civilian population in Germany has declined steadily since 1939. It has been estimated, for example, that there are now roughly five physicians for every 10,000 civilians, as compared with about seven for every 10,000 in 1939. Table 9 shows the various types and the numbers of professional and other health personnel available to the civilian population of central Germany in 1939.

In view of the growing scarcity of medical personnel, the authorities have made efforts to relieve physicians of certain routine jobs and have favored a growing collectivization

Table 8. HOSPITALS IN CENTRAL GERMANY, 1935
(List indicates towns, number of hospitals in each town, and total number of beds.)

Political unit	Town	Number of hospitals	Total number of beds
Provinz Sachsen			
Reg. Bez. Magdeburg			
	Aken	1	20
	Aschersleben	2	180
	Barby	1	40
	Burg b. Magdeburg	2	202
	Calbe	1	85
	Detzel, Schloss	1	68
	Egeln	1	27
	Friedrichsbrunn	1	60
	Gardelegen	1	110
	Genthin	1	110
	Gommern	1	270
	Halberstadt	8	431
	Hornburg	1	22
	Jerichow	1	600
	Konigshof	1	41
	Lostau b. Magdeburg	1	234
	Magdeburg	18	3,784
	Neinstadt	1	750
	Neuhaldensleben	2	1,067
	Oschersleben	1	160
	Osterburg	1	80
	Osterwieck	1	35
	Quedlinburg	5	296
	Salzwedel	2	210
	Schönebeck	2	260
	Seehausen	1	38
	Stapelburg	1	150
	Stassfurt	1	75
	Stendal	4	283
	Tangemmunde	1	100
	Thale	1	16
	Uchtspringe	1	1,345
	Wernigerode	4	401
	Wolmirstedt	1	134
Reg. Bez. Merseburg			
	Artern	1	50
	Bad Durrenberg	6	410
	Bad Kosen	1	80
	Bad Liebenwerda	1	25
	Bad Schmiedeberg	1	75
	Bitterfeld	2	232
	Carlsfeld	1	235
	Delitzch	1	75
	Eilenburg	1	135
	Eisleben	2	340
	Gerbstedt	1	40
	Halle	21	2,684
	Herzberg	1	90
	Hettstedt	2	140

Table 8 (Continued)

Political unit	Town	Number of hospitals	Total number of beds
	Hohenmolsen	1	200
	Kolleda	1	48
	Kosen (see Bad Kosen)		
	Lauchhammer	1	110
	Merseburg	2	151
	Naumburg	3	116
	Nebra	1	34
	Nietleben	1	1,050
	Querfurt	1	44
	Rossla	1	30
	Rottleberode	1	150
	Sangerhausen	2	182
	Schkeuditz	2	1,520
	Stolberg	1	14
	Torgau	1	166
	Weissenfels	1	233
	Wippra	2	127
	Wittenberg	1	210
	Wolfen	1	68
	Zeitz	4	358
Reg. Bez. Erfurt			
	Bad Sachsa	1	50
	Benneckenstein	1	17
	Bleicherode	2	210
	Breitenworbis	1	35
	Dingelstadt	1	47
	Erfurt	16	1,567
	Ershausen	2	274
	Heiligenstadt	3	345
	Kullstedt	1	32
	Langensalza	1	100
	Leinefelde	1	40
	Lengenfeld unterm Stein	1	55
	Muhlhausen	5	1,367
	Neustadt	1	70
	Niederorschel	1	30
	Nordhausen	7	427
	Ranis	1	80
	Rustenfelde	1	5
	Schleusingen	3	213
	Sommerda	1	40
	Sorge	1	135
	Sulzhayn	11	844
	Suhl	2	100
	Treffurt	1	15
	Uder	1	19
	Worbis	1	45
Provinz Hannover			
Reg. Bez. Hildesheim			
	Alfeld	1	10
	Bad Grund	1	40
	Bad Lauterberg	3	188
	Bad Salzdetfurth	1	300

Table 8 (Continued)

Political unit	Town	Number of hospitals	Total number of beds
	Clausthal-Zellerfeld	3	280
	Duderstadt	1	48
	Einbeck	1	82
	Gottingen	16	1,829
	Goslar	4	210
	Grund (see Bad Grund)		
	Hannoversch-Munden	1	75
	Hedemunden	1	27
	Herzberg	1	40
	Hildesheim	6	1,867
	Liebenburg	1	650
	Lindau	1	10
	Mengershausen	1	150
	Meringen	1	35
	Northeim	1	62
	Osterode	1	65
	Peine	1	245
	Ringelheim	1	45
	Salzgitter	1	100
	St. Andreasberg	4	418
	Sillium	1	30
	Wiedelah	1	55
Land Thüringen			
	Allstedt	1	42
	Altenburg	6	430
	Apolda	1	120
	Arnstadt	3	480
	Bad Berka	2	205
	Bad Blankenburg	3	267
	Bad Frankenhausen	4	465
	Bad Liebenstein	2	153
	Bad Salzungen	2	222
	Blankenhain	2	522
	Buttstadt	1	22
	Colberg	1	180
	Dermbach	1	50
	Ebersdorf	1	60
	Eisenach	5	459
	Eisenberg	1	56
	Eisfeld	2	42
	Frankenhausen (see Bad Frankenhausen)		
	Friedrichroda	3	96
	Gehren	1	25
	Geisa	1	45
	Gera	6	736
	Gotha	3	337
	Grafenthal	1	40
	Groiz	1	285
	Hildburghausen	2	905
	Ilmenau	2	150
	Jena	17	1,994
	Kaltennordheim	1	18
	Königsee	1	20
	Meiningen	2	222
	Neustadt	1	34
	Nobdenitz	1	50
	Ohrdruf	1	30

Table 8 (Continued)

Political unit	Town	Number of hospitals	Total number of beds
	Ostheim	1	8
	Plottendorf	1	94
	Possneck	2	70
	Rastenberg	1	75
	Romhild	2	148
	Ronneburg	1	70
	Rudolstadt	1	150
	Saalfeld	2	200
	Schleiz	1	70
	Schmolln	1	66
	Schweina	1	30
	Sondershausen	2	142
	Sonneberg	1	181
	Stadtroda	1	670
	Themar	1	6
	Vacha	1	30
	Walldorf	1	110
	Waltershausen	1	40
	Weida	1	34
	Weimar	4	395
	Zeulenroda	1	150
Freistaat Braunschweig			
	Bad Harzburg	1	58
	Blankenburg a. H.	3	156
	Braunlage	2	178
	Braunschweig	14	1,580
	Helmstedt	2	272
	Hohegeiss	1	30
	Holzminden	3	247
	Konigslutter	1	668
	Obersickte	1	500
	Stiege	2	200
	Thedinghausen	1	15
	Wolfenbüttel	3	225
	Woltorf	1	40
Freistaat Anhalt			
	Ballenstedt	3	256
	Bernburg	5	786
	Coswig	1	17
	Dessau	6	631
	Gernrode	1	70
	Harzgerode	1	160
	Hoym	1	540
	Kothen	2	260
	Leopoldshall	1	217
	Schielo	1	174
	Zerbst	1	160

Table 9. HEALTH PERSONNEL IN CENTRAL GERMANY, 1 JANUARY 1939

	Reg. Bez. Magdeburg	Reg. Bez. Merseburg	Reg. Bez. Erfurt	Reg. Bez. Lüneburg	Reg. Bez. Hildesheim	Thüringen	Anhalt	Braunschweig	Reich
Licensed physicians[a]	885	866	399	267	472	1,073	263	374	47,725
[b]	6.5	5.6	6.3	4.3	7.9	6.2	6.9	7.1	7.0
Licensed dentists[a]	276	262	127	87	157	342	78	106	15,006
[b]	2.0	1.7	2.0	1.4	2.6	2.0	2.1	2.0	2.2
Licensed chief pharmacists[a]	142	154	70	61	75	285	41	65	7,511
[b]	1.1	1.0	1.1	1.0	1.3	1.7	1.1	1.2	1.1
Other licensed pharmacists[a]	104	87	50	23	42	86	31	39	4,921
[b]	0.8	0.6	0.8	0.4	0.7	0.5	0.8	0.7	0.7
Pharmacist assistants[a]	63	61	38	15	34	86	21	36	3,858
[b]	0.5	0.4	0.6	0.2	0.6	0.5	0.6	0.7	0.6
Mid-wives[a]	421	496	276	198	298	621	130	190	23,745
Dental technicians[a]	455	328	152	166	165	383	82	126	20,885
[b]	3.4	2.1	2.4	2.7	2.8	2.2	2.2	2.4	3.0
Masseurs, physiotherapists[a]	293	154	81	25	65	253	69	47	10,112
General nurses[a]	2,105	1,720	1,344	735	1,243	2,256	568	762	135,450
[b]	15.6	11.1	21.2	11.8	20.8	13.1	14.9	14.5	19.7
Children's nurses[a]	86	113	102	40	105	274	22	44	11,002
Obstetrical nurses[a]	25	19	16	23	13	18	4	5	1,483
Disinfectors, exterminators[a]	94	101	60	40	54	162	57	54	5,816
Unlicensed health practitioners[a]	253	143	144	68	69	265	46	89	10,067

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a. Total number.
b. Number per 10,000 population.

of medical services. Most important in this latter respect is the emphasis upon medical care in the factories. On 1 January 1942 there were 268 full-time and 4,069 part-time industrial physicians on duty in 5,800 factories. In general, one industrial physician is expected to care for 6,000 factory workers.

E. Health Conditions

As in every country, health conditions in Germany vary greatly according to the socio-economic conditions and the state of health service organization in different regions. The industrial areas and wealthier districts show a much more favorable picture than the rural areas and poorer districts.

On the whole, the health status of Germans before the war was better than that of most European peoples. Since 1939, however, it has deteriorated steadily. Many diseases and primarily communicable diseases, have shown a marked increase. Between 1935 and 1942 the reported cases of diphtheria have doubled and those of scarlet fever have tripled. This is all the more important as the incidence of these diseases had been relatively high before that time. Certain communicable diseases, formerly rare or unknown, have occurred more frequently — in particular, typhoid fever, trachoma, and typhus fever. Tuberculosis, always outstandingly prevalent, has increased further. Deaths from many of those diseases have multiplied.

Major causes of this deterioration in health are: (1) a diet inadequate qualitatively as well as quantitatively; (2) poor living conditions engendered by overcrowding and the construction of large numbers of small houses without proper consideration of minimum hygienic requirements; (3) overexertion due to war work and lack of sleep (air-raids); (4) shortage of drugs, medical supplies, and equipment; (5)

overcrowding of all hospitals; and (6) an insufficient number of well-trained physicians to provide for the care of civilians.

The conditions prevailing in central Germany reflect all these facts as well as the old disparity between highly industrialized and wealthy areas on the one hand, and farming districts and poor regions on the other. Among the reportable diseases, diphtheria, scarlet fever, whooping cough, and tuberculosis of the lungs lead in frequency. Such diseases as trachoma, meningitis, poliomyelitis, typhoid fever, dysentery, and malaria are of relatively minor importance. There is reason to assume that some of these formerly infrequent diseases have increased substantially in recent years, and that the morbidity and mortality from already frequent diseases have shown a definite upward trend. Tuberculosis mortality, always proportionally high, has risen still further.

F. Sanitation

Most cities and towns in the Central Industrial Region have centralized, municipally owned and operated water supply systems. Rural areas are supplied either by centralized water supply systems or by numerous individual wells.

Prior to 30 April 1943 all water was treated before consumption. Since that date, the induction of unpurified water from rivers, canals, ponds, etc., into the drinking water system has been authorized. As a result, public health is imperiled in areas where this decree has been applied.

The mountainous sections of Central Germany (Harz Mountains and Thüringerwald) have an abundant water supply of good quality. The lower sections, which are densely populated and highly industrialized, are inadequately supplied with water. The ground water is usually very hard, and surface water is polluted by industrial wastes. The lower sections are thus dependent on the mountainous sections for a good and plentiful water supply. (See: Water Supply IV A.3).

Sewerage systems are primarily the concern of the local community and thus are usually planned and supervised by municipal governments. In some areas municipalities have formed associations for the administration of sanitary affairs, since the sewage disposal system of one municipality may become a problem to near-by communities, particularly through stream pollution. There is no association of this kind in the Central Industrial Region, however, and therefore little uniformity in sewage removal and treatment practices.

Most of the larger towns in Central Germany have drainage systems of either the mixed or separate type (separate canals for sewage and rain water or one large canal for mixed drainage) and some kind of central purification installation. In the smaller towns, house units for the treatment of night-soil (Hauskläranlangen) are often used because there is no central purification plant for the community. Many of the smaller towns have a drainage system for waste water, but in the absence of a community purification plant the individual home owner is made responsible for treatment of night-soil. In some instances, Hauskläranlangen are used even though there is a central purification plant, as in Gotha. In rural areas night-soil may be used as fertilizer.

Those towns which have purification installations may use either mechanical or biological means of treating sewage. Magdeburg, for example, uses mechanical means, whereas biological means are used in other localities such as Delitzsch and Braunschweig, where there are irrigation fields; Halberstadt, which uses trickling filter beds; and Merseburg, where there are contact filter beds.

Street cleaning and garbage and refuse removal in German cities is almost always under municipal control. In many localities, regular services have been interfered with by air raids. It is reported that garbage and refuse collects in houses and near-by ruins for weeks at a time in some cities.

IV. UTILITIES AND COMMUNICATIONS

A. Utilities

1. Electricity

a. General. The Central Industrial Region, comprising only 7 percent of the total area of 1937 Germany, contains about 15 percent of its installed generating capacity and 25 percent of its electric power supply. Extension of plant capacity and increase in the plant factor[1] occasioned by the war are not accurately known, but 1943 capacity is estimated roughly at 3,656,000 kw., and 1943 production at about 20,000,000 kwh.

b. Analysis of the Region.

i. Importance and General Characteristics. The Central Industrial Region, developed as a leading chemical, synthetics, and metallurgical producing area, consumes vast amounts of electric power. Since it is rich in easily mined brown coal deposits, it has developed also as a major electricity producing region. These two types of development have complemented and stimulated each other; electric power has thus been one of the most important factors influencing the character of industrialization in the region. (Maps No. 3209 and A-3211).

(1) Sources of Energy. The region's disproportionately large output of electricity (with only 7 percent of the total area of 1937 Germany, the region contains about 15 percent of its installed generating capacity and 25 percent of its electric power supply), may be attributed primarily to the occurrence here of large deposits of brown coal. One of the most efficient uses to which brown coal can be put is the generation of electricity in large steam power plants near the mines.

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[1] Plant factor - ratio of average load to aggregate rated capacity of the generators which supply it.

The Germans have stressed the use of brown coal for this purpose, thus releasing the more versatile hard coal for other uses. At least 85 percent of the electricity generated in the region is produced by plants fueled by brown coal. Hard coal, gas, water power, and peat account for the remainder. Most of the power plants fueled by brown coal are located at or near the mines which supply them; shipment of unbriqueted brown coal for any significant distance has proved uneconomical because of its low calorific value.

(2) Production by Public Supply Companies. There is estimated to be a total installed capacity of 3,656,000 kw. in the region, of which 3,231,000 kw. is in plants of over 10,000 kw. each. About 42 percent of the latter capacity (1,357,000 kw.) is owned and operated by public supply companies. The region's five public supply companies rank, according to amounts of current each generates within the region, as follows: Elektrowerke AG, AG Sächsische Werke (ASW), Preussische Elektrizitäts AG (Preussenelektra), Elektrizitätswerk Sachsen-Anhalt (ESAG), and Thüringenwerk AG. Information concerning the output and sales of each is provided in IV, A, 1,c following.

(3) Production by Private Industrial Plants. Roughly 55 percent of the region's generating capacity (2,035,000 kw., of which 1,793,000 kw. is in plants with over 10,000 kw. capacity) is owned and operated by industries. A substantial amount of the power thus generated is sold to public supply companies or to industries other than the plant owners. Most of the private industrial plants are connected to the high-tension network, thus making possible either sale to or purchase from the appropriate public supply company, as the occasion requires. Some industries, instead of operating their own plants, have acquired shares of the stock of the public supply

companies on which they depend for power. Private industrial plants with more than 10,000 kw. installed capacity are described in Appendix I. The electric current characteristics of the larger cities of the region are listed in Appendix II.

Power stations owned by chemical and synthetic oil and rubber plants total about 1,000,000 kw. installed capacity, or a little over 57 percent of total industrial capacity over 10,000 kw. in size. Of this, I.G. Farben owns by far the largest amount -- at least 388,000 kw. are installed in its Bitterfeld, Wolfen, and Leuna plants. Braunkohle-Benzin AG owns the 175,000 kw. Zeitz-Troglitz station; Braunkohlen- und Briquettindustrie AG (Bubiag) owns the 91,000 kw. Marie-Anne (Mückenberg) station; and Bunawerke GmbH had a 150,000 kw. plant under construction in 1942 to help supply its synthetic rubber factory at Schkopau. Much smaller plants are owned by Alkaliwerke Westeregeln (Cäsar--30,000 kw.); Chemische Fabrik Buckau (Gröbers--16,000 kw.); Kaliwerke Aschersleben AG (Hattorf-15,000 kw.); Mitteldeutsche Treibstoff- und Olwerke AG (Lutzkendorf-Mücheln--36,000 kw.); Kaliwerke Wintershall AG (Merkers--36,000 kw.); Deutsche Solvay Werke AG (Osternienburg--19,000 kw.); Mitteldeutsche Stickstoffwerke AG (Piesteritz--40,000 kw.); and Deutsche Hydrierwerke AG (Rodleben--29,000 kw.).

Power stations of metallurgical firms within the region total about 480,000 kw., or close to 30 percent of total industrial capacity over 10,000 kw. in size. In general, these stations tend to be smaller than those of the chemical and synthetics industries. The Mansfeld copper concern owns three medium-sized plants (Krughütte--24,000 kw; Kochhütte--20,000 kw.; Kupferhammer--15,000 kw.). Ilseder Hütte owns its 30,000 kw. Gross Ilsede station Mitteldeutsche Stahlwerke draws much of its energy requirements from its large 98,000 kw. Lauchhammer plant. What is probably the largest industrial power plant in Germany is located in this area. For supply of its Braunschweig steel works, the Hermann Göring concern has built a huge power station at Hallendorf. Capacity is estimated as at least 290,000 kw., and may possibly be as high as 400,000 kw.

Another industrial power plant of special importance is the 24,000 kw. Jena station of the Carl Zeiss factory. Its significance stems not from its size, but from the fact that it is the chief source of energy for the most important optical works in Europe.

ii. Consumption

(1) Categories of Consumers. As in all Germany,[1] the principal consumer of electric power in the region is industry. In view of the heavy concentration of electrochemical and electrometallurgical plants in this region, it is reasonable to assign a figure of 90 percent or higher to industry, while reducing the percentage for households and trades (this region being less urbanized than the Berlin area and the Ruhr), agriculture, and traction (consumption for which could be liberally estimated at 320,000,000 kwh., or about 1.5 percent of the total).

(2) Production-Consumption Balance. There have been too many wartime changes in the pattern of inter-regional distribution of electric power to admit of any accurate estimate of the production-consumption balance in this region. It is known that about one-fourth of the entire German supply is generated here. Since the region is not an economic unit in terms of electric power supply, a part of its production is exported, notably to

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[1] The over-all estimate for Germany is: industry, 87.2 percent; households and trades, 8.0 percent; traction, 3.6 percent; and agriculture, 1.2 percent.

Berlin.

Some of the electricity consumed in the region is imported, particularly from Bavarian hydroelectric plants, (although intermittent droughts since the autumn of 1941 have probably reduced the amount), and from Silesia. The migration of industry to Silesia may have necessitated a reduction from this source, also.

It is roughly estimated that over half of Germany's electrochemical, synthetics, and electrometallurgical production comes from the Central Industrial Region. Since at least half of Germany's electric power goes into these industries, it would follow that about a fourth of the 72,000,000,000 kwh. consumed in Germany (18,000,000,000 kwh.) is used by these industries here. The region probably consumes an additional 5 percent (roughly 4,000,000,000 kwh.) of this amount for other industries (mining, metalworking, and miscellaneous industries) and for trades, households, traction, and agriculture. Thus, in the absence of reliable statistical data, it can be tentatively estimated that about 22,000,000,000 kwh. -- nearly a third of total German consumption -- is used in this region. If these estimates are accurate, the region is a net importer to the extent of two to three billion kilowatt hours per year, but without the requirements of war industries it would have an extremely favorable balance of electric power.

iii. Transmission. The transmission system, particularly during the war, operates as a "pool" of power, into which all producers (public supply and private industrial plants alike) feed the current which they do not need for direct distribution from the plant, and from which all consumers (industries or "retail" distributors) draw the current which they are unable to produce themselves. This "pool" operates under strict control of the national government (see Civil Affairs Handbook on Germany, 10A).

There is no established division of the German electric power industry which coincides with the Central Industrial Region. The transmission lines which fall within its boundaries are parts of the over-all national grid and have no notable distinctly regional features. The grid systems operated by each of the five large public supply companies are constructed to supply the territories of the companies, all of which serve large areas outside this region. There is, however, a high degree of interconnection of the networks of the different companies; this is as much the result of the national program to integrate the electric power system as of the economic activities of the companies.

Details of the transmission network are indicated on the two maps which accompany this report (Maps No. 3209 and A-3211). All lines of over 30 kv. in this region are represented on one, while the other shows connections at over 80 kv. between this region and the rest of the German high-tension network. Important substations, located often at or near large generating plants, may be noted by the confluence of transmission lines. The most important substations in the region are at Harbke, Diesdorf, Golpa-Zschornewitz, Gross-Kayna, Nachterstedt, Förderstedt, and Bleiloch.

The Central Industrial Region is part of the supply territory of five large joint stock companies and their subsidiaries: Elektrizitätswerk Sachsen-Anhalt AG, Preussische Elektrizitäts AG, Elektrowerke AG, AG Sächsische Werke, Thüringenwerk AG. Each of the five companies owns and operates plants of its own. Each also exchanges electric power with subsidiaries and with industrial firms which own their own large generating stations. In addition, a large amount of power is exchanged (1) among the companies in the region, (2) between those parts of each company which are in the region and those parts which are outside it, and (3) between companies in the region and other companies entirely outside the region. In short, the Central Industrial Region is far from being a self-contained, self-supplying unit, and cannot be administered as such. Supply contracts and deliveries link the power industry in the region very closely with generating and consumption concentrations outside it.

c. Public Supply Companies Operating in the Region (See table 10 and map of Public Supply Districts.)

i. Preussische Elektrizitäts AG (Preussenelektra, PEA). Preussenelektra, owned entirely by the state of Prussia, is twenty-first in size among German joint-stock corporations. Output and sales statistics of the company in past years (in kilowatt hours) were as follows:

	(Apr.-Mar.) 1934-35	1935-36	1936-37	1937-38
Output	512,700,000	531,600,000	588,100,000	755,800,000
Purchases	167,400,000	210,500,000	313,200,000	405,100,000
Sales	582,400,000	616,200,000	769,400,000	965,200,000

Sales for 1938-39 were 1,126,000,000 kwh. and they are estimated at 1,531,600,000 for 1939-40, and 1,684,800,000 for 1940-41.

Preussenelektra operates mainly as a large producer and wholesale distributor; roughly four-fifths of its deliveries are for resale, and only one-fifth is sold directly to the final consumer. Many of its distributors ~~have~~ become its subsidiaries.

The company's main plant is at Borken. Power from this station and from Waldeck is fed to the Lehrte switching station near Hannover to supply the western extremes of the Central Industrial Region. In the Braunschweig area, Preussenelektra draws most of its current from the

Harbke station of Braunschweigische Kohlen-Bergwerke AG, which is owned equally by Preussenelektra and Elektrowerke AG.

(1) Hannover-Braunschweigische Stromversorgungs AG (HASTRA), Hannover. HASTRA'S capital stock is divided among Preussenelektra (66 percent), Ueberlandwerk Braunschweig GmbH (20 percent), and various small cities and Kreise (14 percent). Sales were 86,900,000 kwh. in 1934, 96,010,000 in 1935, 108,300,000 in 1936, 121,600,000 in 1937, and 144,000,000 in 1938. A large increase was reported for 1939. Sales are divided more or less equally among industrial users, small consumers, and resellers. Most current is drawn from the Preussenelektra net.

(2) Elektrizitäts AG Mitteldeutschland (EAM), Kassel. Of the capital of EAM, Preussenelektra owns 26.16 percent; Zwockverband Ueberlandwerk Edertalsperre, a communal organization, owns 29.18 percent; the city of Göttingen owns 12.56 percent, and ten Kreise own the rest. The assets are almost exclusively for distribution, the company having little generating capacity. Current is supplied by Preussenelektra under exclusive contract. Sales amounted to the following (in terms of kilowatt hours): 1934 -- 86,100,000; 1935 -- 93,400,000; 1936 -- 109,100,000; 1937 -- 127,900,000; 1938 -- 144,300,000. Approximately one-quarter went to small users, one-half to industry and trade, and the remainder to resellers.

ii. Elektrowerke AG. Elektrowerke is owned by the Reich through its holding company, Vereinigte Industrieunternehmungen AG, and ranks fifteenth in size among German joint-stock companies and second to Rheinisch-Westfälisches Elektrizitätswerk in output of electric current.

Table 10. PUBLIC SUPPLY COMPANIES OPERATING IN THE CENTRAL INDUSTRIAL REGION

Main Company	Subsidiary	Capitalization and Assets (in RM.)	Area Supplied
Preussische Elektrizitäts AG (Preussenelektra)		C.: 110,000,000 A.: 300,000,000 (ca.)	Northwest section of Central Industrial Region (as well as most of north central Germany)
	Hannover-Braunschweigische Stromversorgungs AG (HASTRA), Hannover	C.: 16,000,000 A.: 43,000,000	Kreise Goslar, Peine, Braunschweig (Land), Wolfenbüttel, Gandersheim
	Elektrizitäts AG Mitteldeutschland (EAM), Kassel	C.: 28,000,000 A.: 42,700,000	A large area of Hessen-Nassau and Hannover around Kassel, including Kreis Heiligenstadt
Elektrowerke AG		C.: 130,000,000 A.: 460,000,000	Northern part of Central Industrial Region
	Braunschweigische Kohlenbergwerke (BKB) Helmstadt	C.: 20,000,000 A.: 106,000,000	
	Ueberlandzentrale Helmstedt AG, Helmstedt	C.: 2,000,000 A.: 10,300,000	Kreise Braunschweig, Wolfenbüttel, Helmstedt (part), Goslar, Peine, etc.

Table 10. Public Supply Companies Operating in the Central Industrial Region (continued)

Main Company	Subsidiary	Capitalization and Assets (in Rm.)	Area Supplied
Elektrowerke AG	Mitteldeutsches Kraftwerk Magdeburg AG (MIKRAMAG), Magdeburg	C.: 10,000,000 A.: 30,000,000	
	Ueberlandzentrale Südharz GmbH		Bleicherode, Nordhausen, and surrounding rural districts
	Stromversorgungs AG Weissenfels-Zeitz	C.: 4,500,000 A.: 9,400,000	
Elektrizitätswerk Sachsen-Anhalt AG (ESAG), Halle		C.: 16,000,000 A.: 57,000,000	Most of Anhalt and Provinz Sachsen
	Elektrizitätsversorgung im Mansfelder Bergrevier AG, Halle	C.: 3,300,000 A.: 9,000,000	Kreise Mansfelder Seekreis, Mansfelder Gebirgskreis, and small parts of Sangerhausen, Querfurt, Halle, and Saalkreis
AG Sächsische Werke (ASW), Dresden		C.: 150,000,000 A.: 700,000,000	East-central part of Central Industrial Region

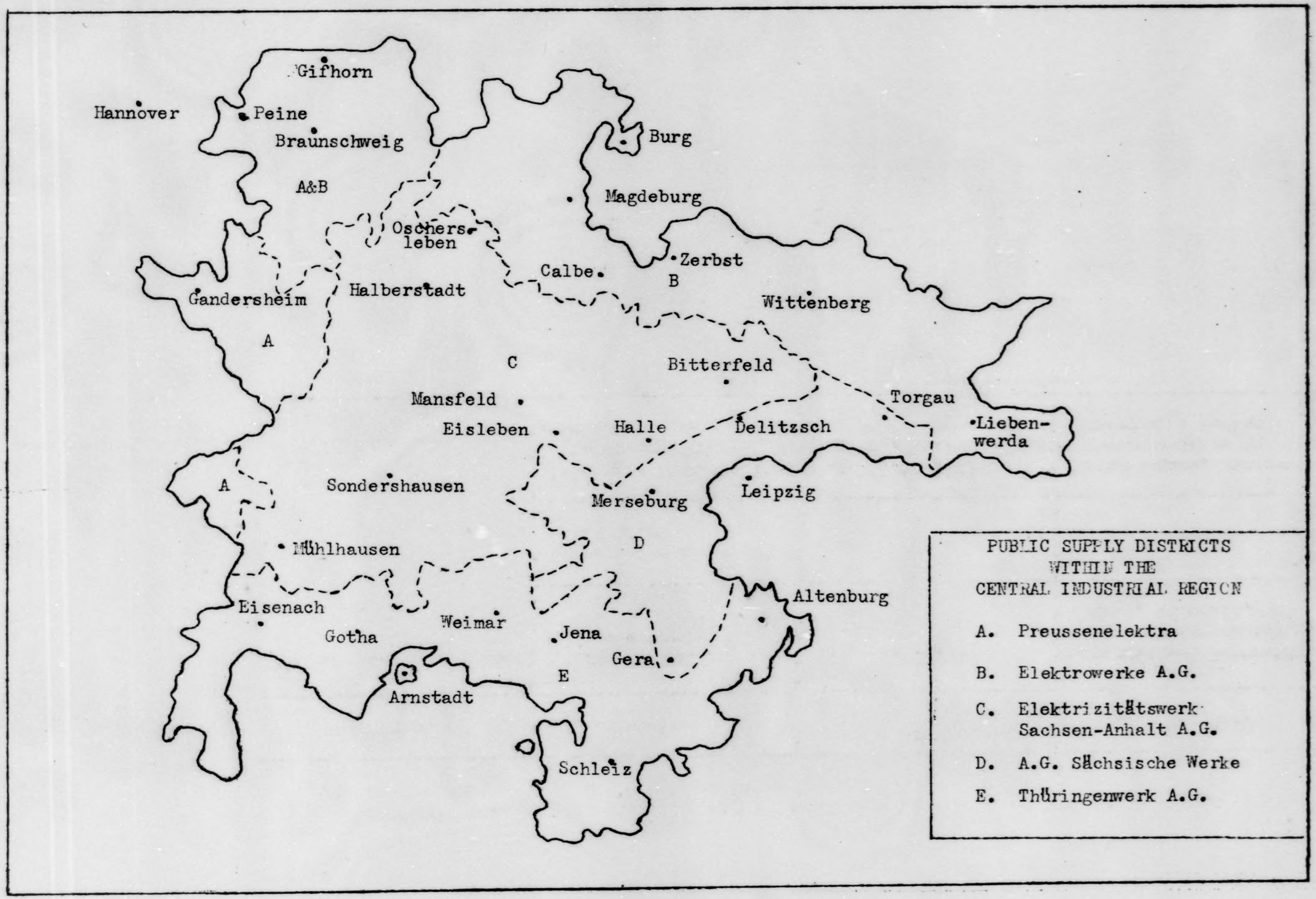
Table 10. Public Supply Companies Operating in the Central Industrial Region (continued)

Main Company	Subsidiary	Capitalization and Assets (in RM.)	Area Supplied
AG Sächsische Werke (ASW)	Landkraftwerk Leipzig AG, Kulkwitz	C.: 16,000,000 A.: 53,000,000	Kreise Querfurt, Delitzsch, Torgau, Merseburg (Part), and others
	Kraftwerk und Strassenbahn Gera AG, Gera	C.: 8,000,000 A.: 14,000,000	
Thüringenwerk AG, Weimar		C.: 22,000,000 A.: 33,000,000	Southern part of Central Industrial Region
	Saaletalsperren AG, Weimar (formerly AG Obere Saale)	PS.[1]: 14,000,000 VS.[2]: 12,000,000	
	Thüringische Elektrizitats und Gaswerke AG, Apolda	C.: 3,600,000 A.: 11,000,000	

1. Preferred stock
2. Voting stock

Table 10. Public Supply Companies Operating in the Central Industrial Region (continued)

Main Company	Subsidiary	Capitalization and Assets (in RM.)	Area Supplied
Thüringenwerk AG, Weimar	Kraftwerk Thüringen AG, Gispersleben	C.: 7,000,000	Gispersleben, Buttstädt, Arnstadt, Krainichfeld, Weimar, Sömmerda, etc.
	Grosskraftwerk Erfurt AG, Erfurt		
	Thüringer Elektrizitäts-Lieferungs Gesellschaft AG, Gotha	C.: 17,600,000 A.: 50,000,000	Kreise Gotha, Eisenach (and others outside the Central Industrial Region)



PUBLIC SUPPLY DISTRICTS
WITHIN THE
CENTRAL INDUSTRIAL REGION

A. Preussenelektra

B. Elektrowerke A.G.

C. Elektrizitätswerk Sachsen-Anhalt A.G.

D. A.G. Sächsische Werke

E. Thüringenwerk A.G.

Gifhorn
Hannover
Peine
Braunschweig
A&B
Burg
Magdeburg
Oschersleben
Zerbst
Calbe
B
Gandersheim
Halberstadt
Wittenberg
A
C
Bitterfeld
Mansfeld
Torgau
Liebenwerda
Eisleben
Halle
Delitzsch
A
Sondershausen
Leipzig
Merseburg
D
Mühlhausen
Eisenach
Altenburg
Weimar
Gotha
Jena
Gera
E
Arnstadt
Schleiz

Production and sales (in kilowatt hours) have been as follows:

	Production	Sales
1934	2,234,500,000	2,134,900,000
1935	2,819,000,000	2,674,600,000
1936	3,250,000,000	3,093,600,000
1937	3,836,600,000	3,637,000,000

Production in 1938 was 4,668,000,000 kwh. and in 1939, 5,500,000,000. About one-third of the sales are probably made to retailers, including virtually all of the distributing groups of eastern and central Germany.

Most of the current of Elektrowerke goes to large industrial works, particularly in the electrochemical and electrometallurgical fields. The most important of these are: the Piesteritz nitrates plant of Bayerische Stickstoffwerke AG near Wittenberg, largest consumer of Elektrowerke current; the Zschornewitz plant of Elektroschmelze GmbH (owned entirely by Elektrowerke); the Bitterfeld aluminum, magnesium, and chemical plants of Metallgesellschaft and of IG Farben, and the Buna plant at Schkopau near Merseburg.

The largest plant of Elektrowerke is Golpa-Zschornewitz, whose 1933 output was distributed as follows: to Piesteritz (46 percent); to Berlin (31 percent); to ESAG (12 percent); to Leipzig (2 percent); and to all others (9 percent). The company owns other plants at Lauta, Trattendorf, and Elbekraftwerk at Vockerode near Dessau.

To meet the huge demand of the electrochemical industries, Elektrowerke buys power from the Lower Silesian industrial plants to the east of the Central Industrial Region and from the Upper Silesian colliery plants, a development which has taken on increasing importance in recent years.

(1) Braunschweigische Kohlenbergwerke (BKB), Helmstedt. BKB is owned equally by Elektrowerke and Preussenelektra. Its assets are about half in electrical properties, but it owns also large coal mines and briquette plants. Total output (in terms of kilowatt hours) was as follows: 1934, 135,600,000; 1935, 169,900,000; 1936, 334,200,000; 1937, 506,000,000.

The company's main plant is at Harbke near Helmstedt. The Harbke transformer station is one of the most important network nodes in north-central Germany, being the junction point for the double 220-kv. lines from Harbke and lines to Gross-Kayna on the south and Magdeburg on the east. Very little current is sold directly, most of it going to Preussenelektra, Elektrowerke, ESAG, Ueberlandzentrale Helmstedt (a subsidiary or BKB), and perhaps to Berlin. A small brown coal station at Treue near Offleben adds some energy to the supply available for sale by BKB, though most of it goes to near-by mines.

(2) Ueberlandzentrale Helmstedt AG. Ueberlandzentrale Helmstedt is entirely owned by BKB. Its sales, which are largely to industry in areas around Helmstedt and Braunschweig, amounted to 40,100,000 kwh. in 1934, 74,600,000 in 1937, and 114,100,000 in 1938. This extraordinary increase reflects the shifting of war industries to the region. From 10 to 20 percent of its requirements are met by its own generating plant at Schöningen near Helmstedt and by several small hydroelectric stations. The rest is drawn exclusively from the Harbke station.

(3) Mitteldeutsches Kraftwerk Magdeburg AG (MIKRAMAG). MIKRAMAG is also controlled by Elektrowerke (51 percent interest) and ownership is shared by the city of Magdeburg (20 percent) and Deutsche Continentale Gas (29 percent). It supplies primarily the zinc refinery

of Georg von Gieschesʼ Erben, the synthetic gasoline plant of Braunkohle Benzin AG, the central gas works of Gasversorgung Magdeburg Anhalt, and the city-owned Magdeburger Versorgungsbetriebe AG. In 1938 total sales were 328,700,000 kwh. It was in this year that demands for the company's power were particularly great and Elektrowerke bought a controlling interest in it in order to meet demands by expanding capacity and by placing its power reserves at the disposal of Magdeburg industry. To carry through the expansion it was necessary to bring a bituminous coal from Silesia and low-temperature, carbonization-coke from the synthetic gasoline complex.

(4) Ueberlandzentrale Südharz GmbH. Ueberlandzentrale Südharz, a Bleicherode firm, is owned by Elektrowerke (25.9 percent), Provinz Sachsen (25.9 percent), and the Kreise Grafschaft Hohenstein and Walbis. Sales were about 50,000,000 kwh. in 1936, and increased 29 percent from 1938 to 1939. The company has a reserve generating station at Bleicherode, but purchases almost all its requirements from ESAG.

(5) Stromversorgungs AG Weissenfels-Zeitz. This Theissen firm is owned by Elektrowerke (37 percent), Provinz Sachsen (37 percent), and the Kreise Weissenfels and Zeitz. Sales were 20,000,000 kwh. in 1937.

iii. Elektrizitätswerk Sachsen-Anhalt AG (ESAG), Halle. ESAG is largely a wholesale distributor for Elektrowerke, owning an important network of high-tension lines and a number of medium-sized thermal stations. Its chief owner is Deutsche Continentale-Gas-Gesellschaft (46 percent), while other shares are held by Elektrowerke (25.2 percent), Provinz Sachsen (25.2 percent), and Anhalt (3 percent).

At least 90 percent of its sales are through resellers such as the cities of Magdeburg, Halberstadt, and Aschersleben, and the following companies: Landelektrizität GmbH, Halle, Ueberlandzentrale Anhalt AG, Landkraftwerke Leipzig AG, and Elektrisches Ueberlandwerk im Mansfelder Bergrevier. Principal industrial consumers are the potash works near Helmstedt, Mansfeld AG in Hettstedt, Gross-Kayna, the IG Farben plant at Bitterfeld, and the Ammendorfer Papierfabrik. The company supplies directly a number of communities in the Kreise Bitterfeld, Delitzsch, and Dessau-Köthen. Sales (in terms of kilowatt hours) have been as follows: 1934 -- 424,500,000; 1935 -- 472,900,000; 1936 -- 534,100,000; 1937 -- 610,100,000; 1938 -- 677,800,000; 1939 -- 780,700,000; 1940 -- 905,600,000.

The company's own generating plants probably supply about one-fourth of this power, the rest being supplied mainly by Elektrowerke, Braunschweigische Kohlenbergwerke, Ueberlandzentrale Helmstedt, and A. Riebeck'sche Montanwerke AG, Halle. The main ESAG generating station is Gross-Kayna. The company also owns a plant in Halle which supplies the area in and around the city. The Bleicherode and Gröbers stations are also owned by ESAG, and regular contributors to the ESAG net are the Nachterstedt plant of the Grube Concordia and the Holzweissig plant of the Grube Leopold AG.

(1) Elektrizitätsversorgung im Mansfelder Bergrevier AG, Halle. This concern is managed by ESAG, which also owns a 59.7 percent share, most of the rest of the firm's stock being held by the Provincial Association of Provinz Sachsen. Sales were 13,200,000 kwh. in 1935-36, 13,100,000 in 1937-38, probably about 15,000,000 in 1939-40, and perhaps 19,000,000 in 1940-41. Almost all

of the energy is drawn from ESAG.

iv. AG Sächsische Werke (ASW), Dresden. ASW, owned by Land Sachsen, has in addition to its electrical properties important interests in brown coal mining and low-temperature carbonization coking, owning about two-thirds of the brown coal fields of Provinz Sachsen. The company is the twentieth largest German joint-stock corporation.

Production and sales (in millions of kilowatt hours) were as follows:

	1934	1935	1936	1937
Production of own plants	1,128.3	1,163.7	1,488.6	
Minus current absorbed in pump-storage plant at Niederwartha	68.1	66.6	76.6	
Net output	1,060.2	1,097.1	1,412.0	1,775.7
Purchases from others	58.6	57.0	99.2	
Sales	960.8	992.8	1,330.0	1,364.0

Sales are divided about equally between direct supply and deliveries to retailers, some of whom are ASW subsidiaries. For 1939 sales were estimated at 2,100,000,000 kwh. Purchases of current are mainly from Elektrowerke, but also from Thüringenwerk and Bayernwerk.

In the Central German Industrial Region two of the large consumers of ASW current are Braunkohle Benzin AG and F.A. Lange Metallwerke AG, Kupferhammer-Grünthal.

The main plants owned directly by ASW are at Böhlen, Espenhain-Mölbis, and Hirschfelde. These for the most part supply the local synthetics industry. Other smaller brown coal plants supply municipalities and contribute to the net at times of peak-load demand, while several state-built hydroelectric stations contribute regularly to the net.

(1) Landkraftwerke Leipzig AG, Kulkwitz. This is an important distributing subsidiary of ASW. Its stock is owned 30.5 percent by ASW, 20 percent by various communal groups, 13.8 percent by ESAG, 11.6 per-

cent by Elektrowerke, and 14.3 percent by Landelektrizität GmbH. Sales (in terms of kilowatt hours were as follows: July 1933 - June 1934 -- 85,900,000; 1934-35 -- 101,600,000; 1935-36 -- 122,800,000; 1936-37 -- 147,100,000; 1937-38 -- 170,700,000. About 70 percent of sales go to retailers. The company is supplied almost entirely by its brown coal plant at Kulkwitz.

(2) Kraftwerk und Strassenbahn Gera AG. This Gera company is owned 66 percent by ASW and 34 percent by the city of Gera. Nearly three-fifths of its assets are in electrical properties, but it also owns three brown coal plants in Gera which are held as reserve stations, while most of the 20,000,000 kwh. consumed by the city is drawn from ASW.

(3) Other Subsidiaries. Other holdings of ASW are as follows: 29.64 percent of Thüringer Gas Gesellschaft; 25.01 percent of Thüringer Elektrizitäts-Lieferungs-Gesellschaft; 25 percent of Thüringenwerk AG; 25 percent of Thüringische Elektrizitäts- und Gaswerke AG, Apolda; and Saxon long-distance gas supply companies, streetcars, and coal mining companies.

v. Thüringenwerk AG, Weimar. Thüringenwerk is a state-owned company engaged mainly in distribution of current through a high-tension net. It is in a somewhat weaker position than most of the other state works, both in its position with respect to redistributing firms and its dependence on outside sources of supply of current. This can be seen in the ownership of the firm's share capital--Land Thüringen, 50 percent; Preussenelektra, 25 percent; ASW, 25 percent. Much of the current for the eastern half of Thüringen is drawn from the ASW Böhlen station, and most for the west from Preussenelektra. Southern Thüringen around Sonneberg is supplied in part with current purchased from Bayerische Elektrizitäts-Lieferungs-Gesellschaft, i.e. from Bayernwerk.

Sales of Thüringenwerk have been (in terms of kilowatt hours) as follows: 1934 -- 170,800,000; 1935 -- 173,000,000; 1936 -- 197,800,000/1937 -- 237,700,000; 1938 (estimated) -- 280,000,000; 1939 (estimated) -- 365,000,000. About 99 percent is sold to retailers; some deliveries are made to Jenaer Elektrizitätswerke AG, the city of Weimar, and Saale Elektrizitätswerk GmbH, Saalfeld, which serves the Kreise of Saalfeld, Rudolstadt, and Ziegenrück. Only about 20 percent of the company's current is produced in its own plants and those of Saaletalsperren AG, managed by Thüringenwerk.

(1) Saaletalsperren AG, Weimar. Saaletalsperren (formerly AG Obere Saale) owns several fairly important hydroelectric plants on the Saale River. Thüringenwerk owns all its preferred stock and manages the firm; Land Thüringen owns 6.6 percent of its voting stock; the Reich government, 86.6 percent; Land Sachsen, 6.6 percent.

The hydroelectric development on the Saale River consists of several dams and generating plants. The main station is at Bleiloch, which acts as an annual compensation basin and power storage reservoir. Output is divided roughly into three parts, and goes to Thüringenwerk, Preussenelektra, and ASW. Since 1936 the Saale River plants have been operated in parallel with the Preussenelektra grid across the Thüringenwerk lines. Below the Bleiloch plant is a compensating basin holding water used for power storage operation. This is formed by a dam at Burgkhammer whose plant operates fairly continuously but must depend to some extent on release of water from the main station. About 50 km. below the Bleiloch plant is the Hohenwarte dam, one of the largest in Germany. The dam is used mainly for water-control purposes, but a power plant, with a probable capacity of about 5,000 kw., was built here in 1939. It could easily be extended to about 50,000 kw., however, and there is some reason to believe that this expansion may have occurred.

(2) Kraftwerk Thüringen AG, Gispersleben. This is a fairly important distributing subsidiary of Thüringenwerk. Its capital stock is owned by Thüringenwerk (33.7 percent), and Elektrizitäts AG vorm. Schuckert & Co. and Thüringer Elektrizitäts- und Gaswerke AG, Apolda (about 27 percent). The company supplies current to the Sommerda plant of Rheinmetall-Borsig, the Fritz Sauckel plant of Gustloff-Werke in Weimar, and Polte-Werke in Arnstadt. Sales (in terms of kilowatt hours) were as follows: 1934-35 -- 25,800,000; 1936-37 -- 39,000,000; 1937-38 -- 46,800,000; 1938-39 -- 60,300,000; 1939-40 -- 74,300,000. About 6,500 kw. of the load is drawn from Thüringenwerk, and some supplies are obtained from the Apolda plant of Thüringische Elektrizitäts- und Gaswerke AG under a mutual exchange agreement. The company owns a steam plant burning both hard and brown coal at Krainichfeld near Gispersleben.

(3) Thüringische Elektrizitäts- und Gaswerke AG, Apolda. This concern owns a small brown coal station at Apolda, and draws most of its current from Thüringenwerk through a transformer station at the Apolda plant. The company is owned by the city of Apolda (35.3 percent), Siemens & Halske (27.7 percent), ASW (25 percent), and Kraftwerk Thüringen AG (4.2 percent).

(4) Grosskraftwerk Erfurt AG. Thüringenwerk has a 32 percent interest in Grosskraftwerk Erfurt

AG, an important contributor to its supply of current. The rest of the company's share capital is owned by the city of Erfurt. Energy is delivered at cost price to the two shareholders from the company's brown coal station in Erfurt. Sales were (in terms of kilowatt hours) as follows: 1934 -- 47,000,000; 1937 -- 67,100,000; 1938 -- 80,500,000; 1939 -- 84,300,000; 1940 -- 83,000,000.

(5) Thüringer Elektrizitäts-Lieferungs-Gesellschaft AG, Gotha. This company is owned by Elektrizitäts-Lieferungs Gesellschaft (31.2 percent), Bank für Elektrische Unternehmungen, Zürich (25 percent), ASW (25 percent), and Elektrische Licht und Kraftanlagen AG(10,8 percent). It has a plant at Gotha, a smaller one at Breitungen, and also purchases current from Preussenelektra and Thüringenwerk. Sales were 75,000,000 kwh. in 1934, 87,800,000 in 1936, and at least 100,000,000 in 1939.

2. Gas[1]

a. Importance of "Group-Gas". Within the Central Industrial Region, as elsewhere in Germany, the bulk of public utility gas is manufactured in local gasworks situated in the community in which the gas is distributed. Of particular significance in this area, however, is the "group-gas" development. Born of an effort to defeat the projected extension of the RUHRGAS network to carry cheap coke-plant gas into this part of Germany, the movement has taken on impressive proportions. Group-gas is a term applied to a system in which large, centrally located gas-and-coke works feed regional transmission networks.

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[1] A more detailed description of the principal gas-transmission network and of the various individual gasworks in the area is included in the larger zonal study, Report on Public Gas Supply in North-west Germany (Appendix I of Civil Affairs Guide on Public Gas Supply in North-West Germany). More general information, largely of a statistical nature, on the public gas supply of Germany as a whole is available in the Civil Affairs Handbook on Germany.)

The largest of these plants was built at Magdeburg-Rothensee, at a junction of good transportation routes, to furnish gas to a network which linked a chain of other gasworks, some of which continued to produce part of their own gas requirements. The large gasworks at Halle and Erfurt supplied less extensive networks, as did the smaller works at Merseburg, Nordhausen and Arnstadt. Originally these smaller networks were entirely separate from one another (Map No. 3079),[1] but since their inter-connection would be both strategic and feasible, it may have been accomplished by this time.

In 1936, about 23 percent of the gas produced by gasworks in Provinz Sachsen, Thüringen, Braunschweig, and Anhalt was sold to other gasworks before distribution. The plant at Magdeburg-Rothensee probably accounted for the bulk of the 70,941,000 cu.m. thus sold. A large proportion--about 45,000,000 cu.m.--of this was purchased by distributing plants which produced no gas. Although no comprehensive statistical information on this point is available for the years following 1936, all indications point to the continued growth of the group-gas movement in this area.

Of the cities of over 50,000 population in the region, all except Bitterfeld, and Dessau produced at least some of their own gas, and these cities themselves may have kept some standby equipment in reserve. It is in the smaller cities and towns that group-gas assumes its greatest significance.

With the approach of war, the Central German Network became less exclusively a group-gas development, and came to rely for part of its supplies on war industries which furnished gas merely as a byproduct. These probably included the Reichswerke Hermann Göring coke plant at Salzgitter and the ASW synthetic fuels plant at Böhlen. Production by these industries and consumption by other war industries probably increased roughly in proportion to one another.

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[1] The networks centered at Nordhausen and Merserburg are not indicated on the map.

b. Raw Materials. The gasworks in Provinz Sachsen, Thüringen, Braunschweig and Anhalt used 709,300 metric tons of coal and 97,900 tons of coke in 1936. This represented proportionately more coal and less coke than the German average. This is probably in large measure attributable to the fact that the Magdeburg-Rothensee plant was operated primarily as a coke-works, i.e., coke-oven gas (made from coal) rather than producer gas (made from coke) was used for underfiring the ovens. Other large plants in the area were operated on the same principle. As a result, in Provinz Sachsen, coke-consumption was half the German average, while gas consumption per unit of gas produced was double the German average. Nevertheless, the Magdeburg-Rothensee plant and probably all other gasworks in the area employing gas for underfiring, could be operated, if need be, exclusively as gas plants and employ producer gas for this purpose, thus releasing more coal gas and less coke for public consumption.

In 1936--the date of the most recent statistics which distinguish different types of coal consumed by gasworks--the use of brown coal for city gas was just beginning to be introduced in plants such as those at Halle, Merseburg and Jena. Even in these plants the proportion of brown coal used was not high, and general statistics for 1936 even lack a special category for brown coal as such. In that year, 618,500 of the

709,300 metric tons of coal used came from the Ruhr and there is no good reason to assume that very much of the difference was made up by brown coal. Since that time, however, the processes worked out at Halle, Jena and Merseburg may have come into much wider use. Prior to the erection of the Böhlen synthetic fuels plant, brown coal by-product gas was utilized for city gas only in the case of a relatively small supply to Dessau from a low-temperature coal distillation plant. Since that time, however, there may well have been other developments, similar to that at Böhlen, based on brown coal as a raw material. If the demand for synthetic fuel should disappear, such plants would presumably go out of operation and hence could not be counted on to meet the city gas needs of the area.

c. Equipment. Available information concerning the equipment of individual gasworks in the Central Industrial Region is insufficient to justify generalizations as to differences between this area and the rest of Germany. The area does not appear, however, to differ greatly from the rest of Germany in this respect. One might expect the largest gasworks (e.g., Magdeburg-Rothensee) to have "horizontal-chamber" ovens (i.e., ovens built like those of a coke plant) and those somewhat smaller (e.g., Halle) to have "vertical-chamber" ovens (i.e., large vertical retorts), in some instances (e.g., Merseburg) of the continuously operated type. The many very small plants still in operation probably have small old-fashioned horizontal retorts.

It is unlikely that any but larger plants pay much attention to by-product recovery. Only in the case of the Magdeburg-Rothensee coke-and-gas works is there evidence of any special methods of purification other than the usual dry-type iron-oxide process.

Although there is a large dry-disk gasholder at Magdeburg-Rothensee and a small high-pressure spherical one at Eisenach, the type of holder most common in the area is probably the same telescopic type common in the rest of Germany and other countries.

d. Ownership. Municipal ownership of gas plants is the rule in the Central Industrial Region as in other parts of Germany. However, various financially interconnected holding companies enter the picture, particularly in the case of places served by transmission networks. In several instances there are separate ownership arrangements for (1) the plant which produces the gas, (2) the company which distributes gas to the city in or near which the plant is located, (3) the pipelines which transmit the gas to other places, and/or (4) the companies which control distribution at the end of the line. At any of these levels ownership may be completely private, completely public (municipal, provincial, etc.), or mixed. Insofar as private ownership is concerned Deutsche Continental Gasgesellschaft (DCGG) is the key holding company in this area, controlling some enterprises directly and completely and others through intermediate mixed-ownership companies. The spheres of influence of mixed-ownership concerns are in many instances delimited by governmental boundaries.

e. Consumption. As compared with the rest of Germany the proportion of public utility gas consumed by industry is low in Provinz Sachsen and high in Thüringen, Braunschweig, and Anhalt, the over-all figure corresponding roughly to the German average. Both total consumption and the proportion of industrial consumption increased during the years 1935-1937, a trend which probably continued thereafter (Table 11).

Table 11. CONSUMPTION OF PUBLIC UTILITY GAS, SHOWING PROPORTION CONSUMED BY INDUSTRY (Industrie und Gewerbe)

State or Province	Total Consumption 1000 cu.m.			Percent Consumed by Industry		
	1935	1936	1937	1935	1936	1937
Provinz Sachsen	152,137	170,691	191,815	15[1]	17[1]	18[1]
Thüringen	52,472	55,921	61,446	27	27	33
Braunschweig	23,844	26,677	30,520	31	34	39
Anhalt	18,042	19,042	21,599	25	31	35
TOTAL or AVERAGE	246,495	272,331	305,380	20	22	24

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[1] The exceptionally low figure for indsutrial consumption in Provinz Sachsen is probably in large part the result of the inclusion of large amounts of gas for underfiring the ovens in that province.

3. Water Supply[1]

a. Water Supply Adequacy. Large sections of the Central German Industrial Region are confronted with inadequate water supply (Map No. A 3043). The Harz Mountain area has plentiful good, soft surface water, but this is far from the highly industrialized forelands to the north and east. The forelands have critical water problems as a result of periodic droughts, and the fact that the ground water is extremely hard, and the surface water highly polluted. The water supply of the Thuringian Basin to the south also suffers from inadequate rainfall. Furthermore, the ground water there is unusually hard, and natural filtration in the limestone areas is too rapid to assure purity. There are springs of good quality in a few areas, but the basin depends heavily also on the utilization of the surface water of the Thüringerwald.

From the standpoint of water supply, rainfall is adequate only in western Central Germany, and excessive only in the Harz Mountains and the Thüringerwald. Toward the east the area becomes progressively drier, some parts having less than twenty inches annually. Bedrock and surface material are capable of holding large amounts of ground water reserves if precipitation were greater and water withdrawals were not so completely out of balance with water replenishment. Mining activities have lowered the ground water table over wide areas and industrial waste has polluted surface streams to such an extent as to nullify their value as sources of domestic supply. Much of the surface water in the Harz Mountains and probably also in the Thüringerwald has been dammed, and the waters which formerly caused destructive floods are not stored.

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[1] A Special report, R & A 2233, has been issued on the water resources problem by the Office of Strategic Services.

b. Water Quality. In general, the water supply is of poor quality. Ground and spring water are usually highly mineralized. Hardness and mineral content of the ground water at great depths may be so high that it would require very expensive treatment before it could be used. In sections of the forelands and the Thuringian Basin the water is so bad that it has to be imported from other areas. Surface water supplies in Central Germany are generally soft. The lower stream courses are so polluted, however, that considerable amounts can be used only industrially.

c. Water Treatment. Water for domestic purposes must be treated before use. Surface waters have to be freed from industrial wastes and ground water must be softened and--especially in limestone areas--purified. Both surface and ground water contain free carbonic acid, iron, and manganese, which must be removed by aeration and filtration. For industrial purposes, ground water requires expensive softening, but much surface water is used without treatment.

The bombing of German cities has reduced their water supply at an alarming rate. The destruction of water works installations and the great need of water for fire fighting impelled the Ministries of Air and of the Interior to authorize (30 April 1943) the induction of water from rivers, canals, ponds, etc., into the piped drinking water system without prior treatment.

d. Harz Mountain Area. The Harz Mountain area has abundant water. The runoff has, for many centuries, been collected behind small dams. Not until the twentieth century, however, when needs in the forelands had become critical, was more extensive and multiple-purpose utilization of water resources begun. The softness of the mountain water--in contrast to the extreme hardness of the ground water of the forelands--makes it ideal for all uses. It requires treatment only for domestic use.

The Harz Mountains consist of relatively impermeable and fissured crystalline rocks. Ground water, occurring mainly in joints and fractures, is little utilized because of the abundance of surface water. Precipitation is heavy, being greatest in the higher western section. Maximum rainfall occurs in January, and a secondary maximum in July; minimum rainfall occurs in October.

The rivers have a wide range of annual discharge. Of the 528,000,000,000 gallons of water falling on this area, usually about half (264,000,000,000) runs off as surface water. Regionally, the percentage of runoff varies from 68 percent in the western to 10 percent in the eastern Harz. All the larger rivers--Bode, Holzemme, Ilse, Ecker, Radau, Oker, Söse, Sieber, Oder, and Innerste--originate in the western Harz, where they have steep gradients and are torrential in character. Violent floods occur with sudden rainstorms, when the runoff is increased by frozen ground, and when the snow melts. The Bode River near Thale, for example, has a discharge of only 264 to 396 gal./sec. in summer, but in spring discharge is 26,400 to 66,000 gal./sec. The Oker River has near Wolfenbüttel a discharge of seventy-nine to 185 gal./sec. in spring, and of up to 79,200 gal./sec. in winter. Floods are a hazard everywhere, and would have disastrous effects were the da ms constructed in the major river valleys damaged or destroyed.

i. Sources of Water Supply

(1) Lakes. All the lakes of the Harz area are artificial except those of the limestone southern edge. The towns of Clausthal, Zellerfeld, and Bockswiese

get their drinking water from artificial lakes. The sixty-nine lakes have a total volume of about 2,768,000,000 gallons.

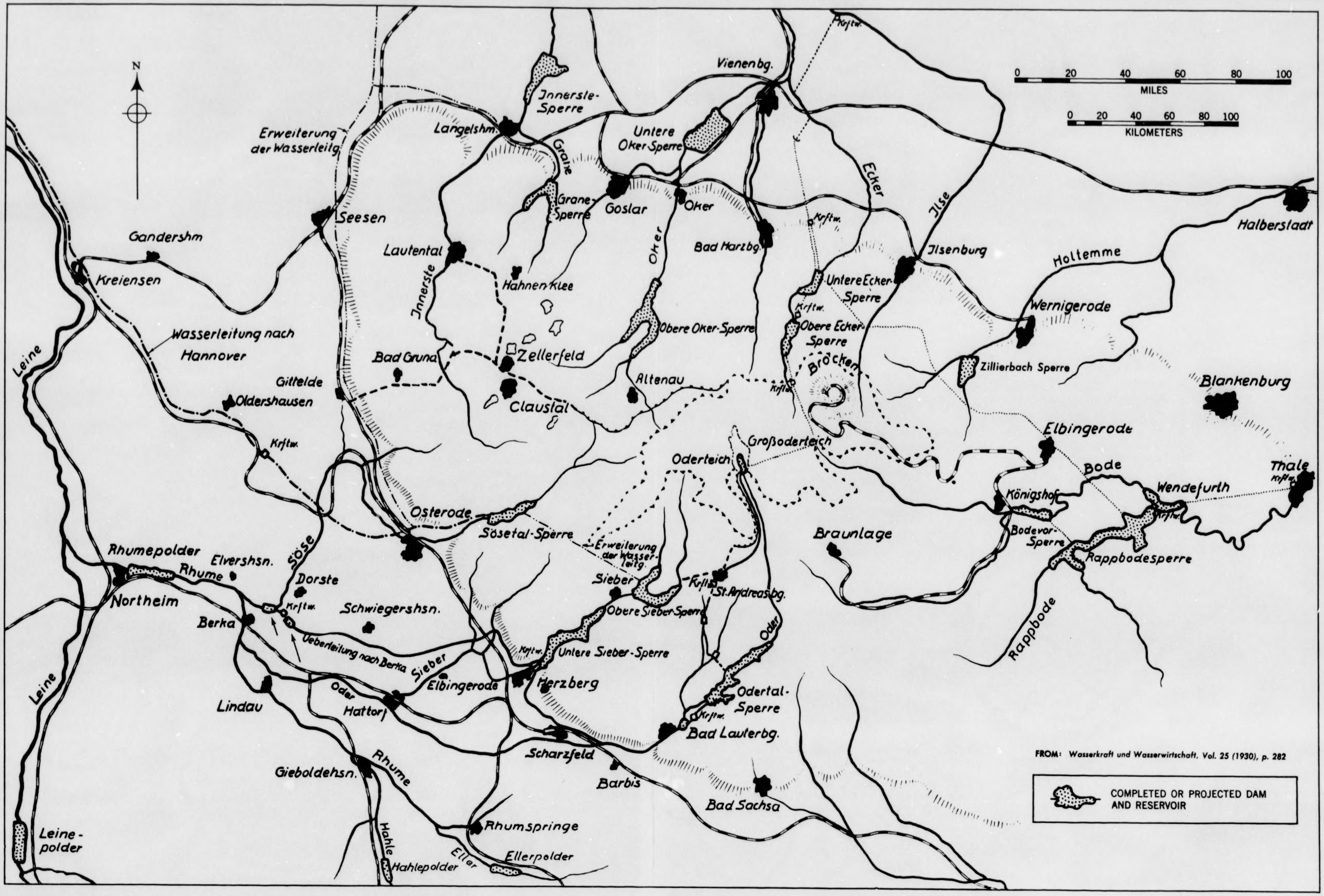
(2) Dams. Dams have been built in the major river valleys (Map No. A-3284). Most of them serve multiple purposes: detention of flood waters, supply of domestic and industrial water, production of hydroelectric power, irrigation, and regulation of rivers and canals. Detailed information is available for only some of the dams (Table 12). While others are known to have been planned, there is no evidence that the plans have been put into execution (Table 13).

e. Forelands. Good water supply in the forelands north and east of the Harz is inadequate because of low rainfall, the results of mining activities, and industrial pollution. The area is completely dependent on the Harz Mountain area for a good and plentiful water supply. Certain projects for bringing water from the Harz mountains to the forelands had not been completed in 1940. Water supply has been critical in this area since the beginning of rapid industrialization in 1933 (Maps No. A-3282 and A-3283). The population of the Central German cities increased by 7.2 percent between 1933 and 1937, while water consumption increased by 51 percent, or about 3,960,000,000 gallons annually. Industrial needs also became increasingly urgent. Large industries built their own water plants along the river courses, and returned polluted used water to the rivers. In mining areas the ground-water table has been appreciably lowered not only in the mines themselves but also in large surrounding areas.

The bedrock--much of which is covered by loess--has several ground water horizons, and could hold larger amounts of ground water reserves if water consumption were lower. The forelands have comparatively little rainfall

FREE

COMPLETED AND PROJECTED DAMS OF THE HARZ MOUNTAIN AREA


N
Innerste-Sperre
Viennenbg.
Kraftw.
Erweiterung der Wasserleitg.
Langelshm.
Untere Oker-Sperre
Grane
Ecker
Ilse
Grane-Sperre
Goslar
Oker
Seesen
Gandershm
Lautental
Bad Harzbg.
Krftw.
Ilsenburg
Halberstadt
Holtemme
Kreiensen
Innerste
Hahnen Klee
Oker
Untere Ecker-Sperre
Wernigerode
Wasserleitung nach Hannover
Obere Oker-Sperre
Obere Ecker-Sperre
Zillierbach Sperre
Leine
Bad Grund
Zellerfeld
Brocken
Gittelde
Oldershausen
Clausthal
Altenau
Blankenburg
Elbingerode
Krftw.
Großoderteich
Oderteich
Bode
Thale
Königshof
Wendefurth
Osterode
Sösetal-Sperre
Braunlage
Bodevor-Sperre
Rappbodesperre
Rhumepolder
Elvershsn.
Söse
Erweiterung der Wasserleitg.
Rhume
Dorste
Sieber
Krftw.
St. Andreasbg.
Northeim
Krftw.
Schwiegershsn.
Obere Sieber-Sperre
Berka
Ueberleitung nach Berka
Sieber
Untere Sieber-Sperre
Oder
Rappbode
Leine
Elbingerode
Herzberg
Lindau
Oder
Hattorf
Odertal-Sperre
Bad Lauterbg.
Scharzfeld
Gieboldehsn.
Rhume
Barbis
Bad Sachsa
Rhumspringe
Leine-polder
Hahle
Hahlepolder
Eller
Ellerpolder
MILES
0 20 40 60 80 100
KILOMETERS
0 20 40 60 80 100
COMPLETED OR PROJECTED DAM AND RESERVOIR

FROM: Wasserkraft und Wasserwirtschaft, Vol. 25 (1930), p. 282

NO. A-3284 - RA, OSS
15 APRIL 1944

LITHOGRAPHED IN THE REPRODUCTION BRANCH, OSS

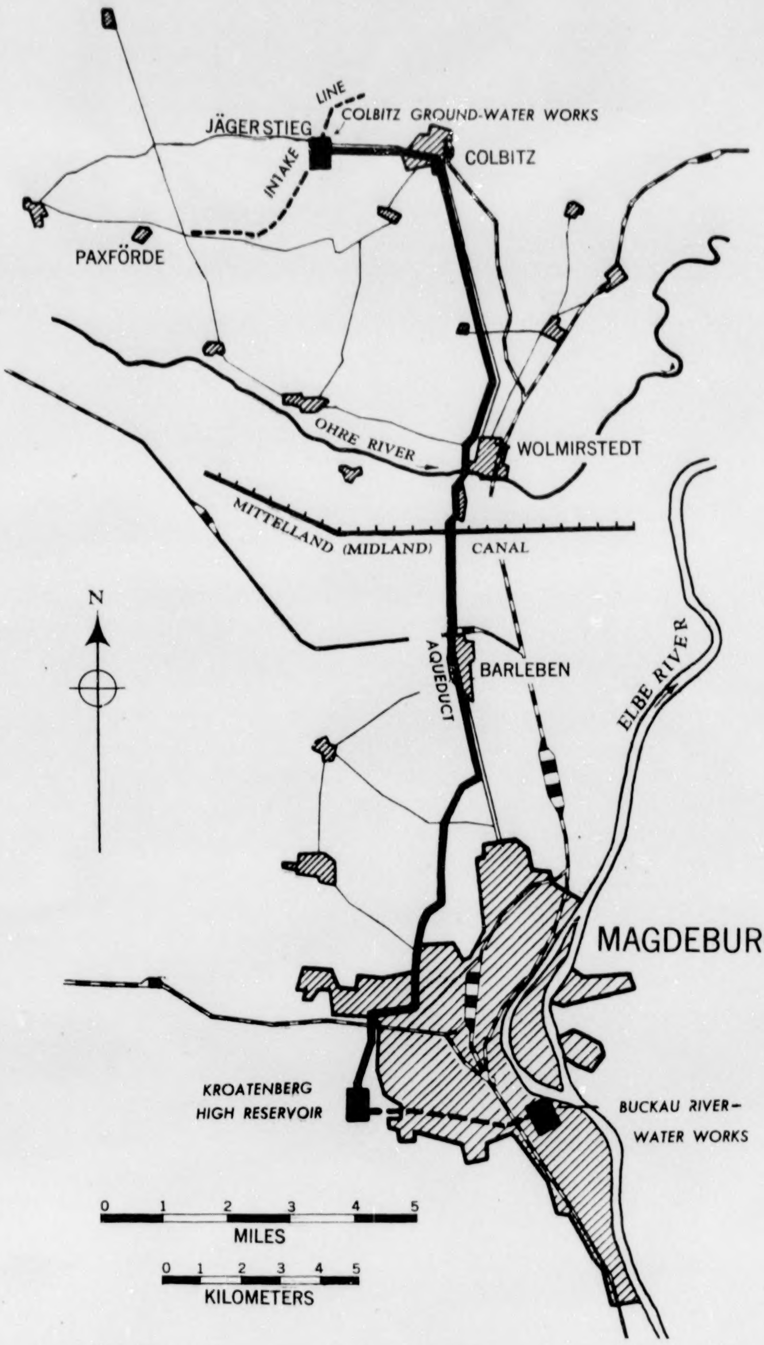
Table 12.

DAMS OF THE HARZ AREA[1]

Dam	Reservoir Capacity (gallons)	Water Quality	Treatment
Söse dam	main: 6,600,000,000 upper: 198,000,000 lower: 66,000,000	turbid; soft; 36 p.p.m.; 43°F.; bacterial & biological content	aluminum sulphate & soda; chloramin process; filtration
Bode system	total: 35,376,000,000	soft: 72 p.p.m.	filtration; chlorination
Rappbode dam	28,644,000,000		
diversion dam			
Wendefurter dam			
4 check dams			
Zillierbach dam	700,000,000	soft	aeration; filtration; has to be hardened
Oder dam	8,448,000,000		

1/ See map A-3284 for locations.

FREE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INTAKE
JÄGERSTIEG
COLBITZ GROUND-WATER WORKS
COLBITZ
PAXFÖRDE
OHRE RIVER
WOLMIRSTEDT
MITTELLAND (MIDLAND) CANAL
N
AQUEDUCT
BARLEBEN
ELBE RIVER
MAGDEBURG
KROATENBERG
HIGH RESERVOIR
BUCKAU RIVER-
WATER WORKS
0 1 2 3 4 5
MILES
0 1 2 3 4 5
KILOMETERS

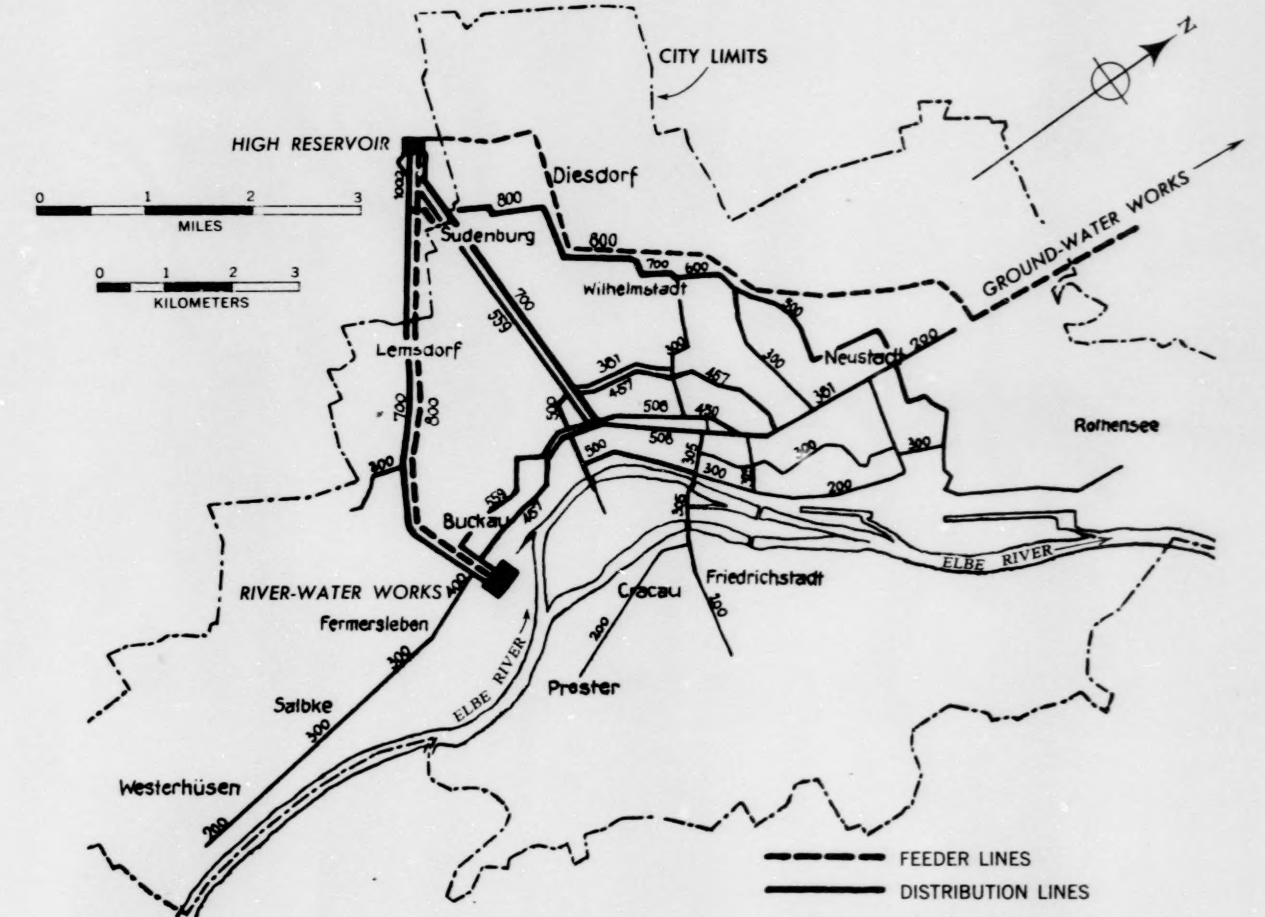
MAGDEBURG WATER SUPPLY SYSTEM

FROM: *Der Gas-und Wasserfach, Vol. 76, 1933*

NO. A-3282 - RA, OSS
14 APRIL 1944

LITHOGRAPHED IN THE REPRODUCTION BRANCH, OSS

FREE


CITY LIMITS
N
HIGH RESERVOIR
0 1 2 3
MILES
0 1 2 3
KILOMETERS
Diesdorf
Sudenburg
Wilhelmstadt
GROUND-WATER WORKS
Neustadt
Rothensee
Lemsdorf
Buckau
RIVER-WATER WORKS
Fermersleben
Salbke
Westerhüsen
Cracau
Friedrichstadt
Prester
ELBE RIVER
ELBE RIVER
1000
800
800
700
600
700
559
500
300
299
361
457
457
508
508
450
500
305
300
300
300
300
200
200
200
100
300
300
559
457
700
800
300
FEEDER LINES
DISTRIBUTION LINES

Figures represent pipe diameters in mm.

MAGDEBURG MAIN WATER DISTRIBUTION SYSTEM

FROM: *Der Gas-und Wasserfach, Vol. 76, 1933*

NO. A-3283 – RA, OSS
14 APRIL 1944

LITHOGRAPHED IN THE REPRODUCTION BRANCH, OSS

Wernigerode has 31 inches of rain annually, while it is below 23 inches near Ballenstedt and Mansfeld, and less than 20 inches farther east. Maximum precipitation occurs in summer, the minimum in winter.

The forelands were subjected to sudden floods in winter and spring and droughts in summer before construction of the dams in the mountain area. The Elbe River above the mouth of the Saale, annually carries 3,696,000,000 gallons; the Saale carries an annual mean of 792,000,000,000 gallons, and the Bode (at its mouth on the Saale) about 118,800,000,000 gallons.

i. Sources of Water Supply

(1) Ground Water. Ground-water conditions are extremely critical. Ground water was the first water source used on a large scale in the region, and individual wells--still prominent today in rural districts--were the characteristic method for obtaining water. The wells first tapped only the upper ground-water levels, but as consumption increased and central works were built, wells were drilled to deeped levels. The deeper waters have a high carbonate and mineral content, which increased with continued water withdrawal until the water became unusable in some instances. The ground-water supply, especially of many rural communities, is of questionable quality: of thirty-nine communities chosen at random, twenty-one had water of doubtful quality, and twenty-two had water with a mean hardness exceeding 966 p.p.m., calculated as calcium carbonate. In one case a well with water hardness of 988 p.p.m. was being used by people from other areas, whose water had a hardness of over 1,790 p.p.m. Except in the immediate vicinity of surface streams, all ground water supply depends upon precipitation for renewal.

(2) Surface Water. Surface water is today little used for domestic purposes in the forelands. Since the beginning of industrial development in the area, river water has become too polluted and salted to be satisfactory for drinking without the most expensive processes of water treatment. River water is extensively used only by industries which require large amounts of water for cooling and manufacturing processes.

By means of dams and aqueducts, the residents of the forelands have tapped waters of the Harz Mountains. There are three known long-distance aqueducts in the forelands, two of which--to be finished by 1941 or 1942--had not been completed by 1940.

The Osterode-Hildesheim-Bremen aqueduct, leading from the Söse dam to Bremen, delivers 8,000,000 gallons. Nearly half of this goes to Bremen, but water is distributed also to fourteen towns and adjoining rural areas, the largest of the latter being that between the Pelze and Benther Berg reservoirs. Since many consumers along the aqueduct do not have their own reservoirs, four high reservoirs have been constructed, of which two are within the Central Industrial Region: an earthen one near Ackenhausen, and one of the two largest (capacity more than 1,320,000 gallons) high reservoirs near Pelze.

Two long-distance aqueducts conduct water from the Bode dam system to the eastern and northeastern forelands, one aqueduct leading to Halberstadt and Magdeburg, the other to Eisleben, Halle, and Merseburg. High reservoirs insure an uninterrupted water supply, 15,840,000,000 gallons being distributed annually by gravity. Since the aqueducts were to have been completed in 1941 or 1942, it is probable that they are now in operation.

f. Thuringian Basin. Supplies are taken chiefly from spring and ground water, surface water being neither dependable nor safe because of fluctuating river volumes and industrial pollution. Centralized supply developments exist in many communities, but there are many individual wells in rural areas and in the flatter sections of the region. Water must be treated before use, since most of the bedrock is porous and the water is not filtered thoroughly by natural means. Most ground water is hard (350-530 p.p.m., calculated as calcium carbonate) and often contains large amounts of free carbonic acid.

Mean annual precipitation varies from less than twenty inches north of Erfurt to fifty inches or more in the Harz Mountains and the Thüringerwald, where water of good quality is plentiful. The rivers are highly seasonal in volume and subject to high water of floods.

Plans were formulated for the construction of dams in the Thüringerwald to alleviate the water shortage in the basin. Five possible sites--Kernwassergrund, Emsergrund, Schmalwassergrund, Erlegrund, Haselbach Valley--were selected for construction of a storage reservoir with a capacity of 15,840,000,000 gallons. Previously, plans had been drawn up for the improvement of the water supply of some of the individual towns. Eisenach projected a dam (storage capacity 3,960,000,000 gallons) in the Fuchshüttergrund above Winterstein in the Thüringerwald; the soft surface water would be mixed with the hard ground water not used, to obtain medium hard water. Gotha planned to build a dam in Schmalwassergrund to supplement its existing dam (storage capacity 198,000,000 gallons) in the Apfelstädt Valley. The latest information available (1934) does not indicate that these plans have been fulfilled.

B. City Sturcture and Urban Transport

1. City Structure.[1] Those cities of central Germany having a population of more than 50,000[2] were important towns during medieval times and have continued to maintain their importance because of agriculture, industry, commerce, and transportation. During recent years they have grown largely because of the development of war industries in the area.

Generally speaking, all of the cities have certain similarities and each is divided into the following zones:

Inner Town Zone (Medieval)

The Inner Town is the medieval core of the present-day city. It is characterized by narrow, crooked streets[3] laid out in a spider-web pattern, centering about the large square or squares, containing the Cathedral and other structures of earlier days. Street widths range from eight to sixteen feet, with main thoroughfares twenty-four to forty feet broad. In this zone are many 16th and 17th century houses, shops, offices, workshops, small factories, warehouses, markets, some dwellings, and tenements, all two to five stories high. All types of structures are present, varying in height, style, age, and use, and ranging from medieval timber-framed, brick-filled structures with timber floors and timber, tile-covered roofs, to modern steel and concrete-framed, fully fire-resistant buildings. Although the medieval

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1. See Appendix III for "Utilization of Land and Density of Population in the Central German Urban Areas - 1937"
2. Magdeburg (336,838), Halle (220,092), Braunschweig (196,068), Erfurt (165,615), Dessau (119,099), Gera (83,375), Jena (70,573), Weimar (65,892), Halberstadt (57,187), Gotha (54,639), Eisenach (53,116). (Population figures as of 17 May 1939).
3. See Appendix IV for "Road surfaces within Urban Areas in Central Germany - 13 March 1937."

types predominate, there are many intermediate buildings which are only partly fire resistant. The area is 60-75 percent built-up and contains practically no private gardens or parks. Occasionally the Inner Town is separated from the Inner Residential Areas by a ring of boulevards which corresponds to the old medieval limits.

Inner Residential Zone (17th-19th centuries)

Outside the Inner Town are the Inner Residential Areas, 50-65 percent built-up, and generally consisting of rows of houses, three to five stories high, with some back gardens, parks and public buildings. There are many four-sided tenements three to five stories high with a central court. Almost all of the buildings are built of timber, and surfaced with slate, tile, or bituminous sheet, and range in age from 17th to 19th century. Some shopping centers, hotels, cinemas, newer apartments, and a few miscellaneous and light factories are also located in this zone.

Outer Residential Zone (late 19th century)

Beyond the Inner Residential Areas and sometimes separated by railway lines and factory developments or a second ring of boulevards, is a discontinuous, recently developed urban area, 40-50 percent built-up, which contains small districts of four-sided tenements with courts, better-class flats, large single-family estates, public buildings, and a few miscellaneous and light factories, separated by open spaces, parks, and gardens. The structures are much the same as those of the Inner Residential Zone. Generally the street pattern is rectangular with some radial thoroughfares. Street widths vary from forty-five to fifty-five feet. Blocks are rectangular and about 100 by 200 yards. There are very few open squares.

Suburban Zone (20th century)

The Suburban Areas are characterized by three-story modern flats, single-family houses and estates, and cottage developments, and are 20-30 percent built-up. Structures consist mostly of unframed brick and stone walls, but there is some use of steel and concrete in large-scale housing. Roofs are mostly of timber, surfaced with slates, tiles, or bituminous felts. Streets are forty-five to fifty-five feet wide, with main thoroughfares from forty-five to seventy-five feet in width.

Industrial Zone (Mainly last fifty years)

In each city there are from one to four industrial areas closely related to the railroads and waterways. Most of the new factories have been built in the environs and outskirts of the cities, and consequent housing developments have grown up in association with them. Some of the very recent factory developments are completely removed from the urban areas and are located in the outlying woods. At Halle spacious underground shelters have been built for the workers near one of these factories and similar shelters may have been constructed near outlying factories in other areas. There are small factories and numerous workshops in the Inner Town and scattered throughout the Inner and Outer Residential Areas. The new factories are predominately single-story, mostly of steel or concrete framing with light sheet roofing.

Railways

The main railway station is generally in close proximity to the Inner Town. In a few instances the railways practically encircle the cities , separating the Outer Residential Areas and the Suburban Areas from the rest of the city. In all cities the factories are located in close association with the railways. Marshalling yards and repair facilities are present in some of the larger cities.

2. Urban Transportation. Public transportation in the urban areas is borne by streetcar and bus lines. In Magdeburg horse-drawn vehicles are also used. Taxis have nearly disappeared and are only used by special permit.

Since 1941 all public lines have been heavily overtaxed. Few replacements and little new equipment have been available. Regulations have been enforced to insure maximum use of the equipment by those people most directly concerned with the war (e.g., factory workers, air raid wardens, wounded veterans). In some areas certain groups have been entirely or partially forbidden the use of the lines (e.g., Eastern and civilian Polish workers, school children).

Private transportation[1] has ceased in many instances. Few automobiles are still in use as they are subject to rigorous regulations and may be operated only after being converted to solid fuel. Motorcycles are used only by a chosen few. The majority of private vehicles are in storage or have been commandeered by the Army; this is particularly true of trucks. Bicycles are the most popular means of private transport and are used extensively, although for necessary travel only.

a, Streetcar Systems. Streetcar systems are present in Braunschweig, Dessau, Eisenach, Erfurt, Gera, Gotha, Halberstadt, Halle, Jena, Magdeburg, and Merseburg. Most

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1. Latest available figures on this subject dated July 1938. See Appendix V: "Urban Vehicles in Central Germany, July 1938", covers numbers of busses, cars, trucks, fire-trucks, street-cleaning apparatus, others, motorcycles, and tractors in Braunschweig, Dessau, Eisenach, Erfurt, Gera, Gotha, Halberstadt, Halle, Jena, Magdeburg, and Weimar.
2. See Appendix VI for "Garages in Urban Areas in Central Germany - 1939" and Appendix VII "

of these lines operate within the cities, although in Braunschweig, Halle, Magdeburg, and Merseburg, extensions run to adjacent suburbs and near-by towns outside the city proper. All systems are electrified.

The latest available statistics for the streetcar enterprises, 1937[1], give operational data pertinent to a normal peacetime year. Much of the information has not altered. The length of track of each line is the same; the number of personnel is slightly reduced, and women have taken over many of the jobs; the gauge of the track has not changed (1.000-m. for eight enterprises; 1.435-m. for three).

Apparently the total amount of equipment is somewhat reduced. It is increasingly difficult to secure replacements and new equipment is not available. Bomb damage has occasionally created shortages, but when the damage has been severe, replacements have been brought in from outside areas.

In 1937 the eleven systems owned 434 (1.000-m. gauge) and 178 (1.435-m. gauge) electric railcars with current collectors; 698 (1.000-m. gauge) and 352 (1.435-m. gauge) trailers; forty-five (1.000-m. gauge) and thirty-eight (1.435-m. gauge) service cars.

The number of passenger trips last year was probably twice that in 1937 when 140,000,000 trips were made on all eleven systems. In order to assure efficiency the length of track operated and the number of routes have been reduced since 1937. It is not known whether any track has been removed.

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[1] See Appendix VIII for "Urban Streetcar Systems in Central Germany, 1937" for data relative to 12 streetcar enterprises. The data include information concerning the line, equipment, personnel, traffic, finance, name of carrier, name and hq. of operating agency, and agency in charge of regulations.

Streetcars are also now being used to transport freight and foodstuffs.

b. Bus Lines. Bus lines existed in Braunschweig, Dessau, Gera, Halle, Halberstadt, and Magdeburg in 1936; in Weimar in 1937.[1] Figures for 1938 show a total of 379 busses in all areas with a population of more than 50,000.[2]

At present bus lines probably supplement the streetcar systems in all areas, with the exception of Weimar where busses alone provide public service. In the major urban areas (Braunschweig, Halle, Magdeburg, and Dessau) and industrial regions, bus lines have proved especially valuable when the streetcar lines were damaged. In nearly all areas passenger regulations similar to those imposed on the streetcar lines exist for the bus lines.

Practically all busses have been converted to solid fuel and some attempts are now being made to convert to city gas.

Heavy and continual usage has cuased the equipment to deteriorate considerably. Few replacements are available.

3. Housing Conditions.[3] There has been a housing shortage in Germany ever since World War I. During 1919-39 only one dwelling for every twenty inhabitants was built in all Germany; 20-40 percent of the total dwellings in urban areas in central Germany were built during this period. The majority of these developments were in the Outer Residential and Suburban Zones, and

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[1] See Appendix V for data relating to "Urban Bus Statistics for Central Germany, 1936". Covers length of line, number of passengers transported, operating revenue and expenses.

[2] See Appendix V for "Urban Vehicles in Central Germany, July - 1938": Busses.

[3] See Appendix IX for "Housing Statistics for Urban Areas in Central Germany, 1939."

in small towns located near the cities. Many of the "new" dwellings were subdivisions of large 100-year-old dwellings into flats. Flats provide about one half of German dwellings and are the cause of the tremendous density of population within urban areas. In many instances rents were fixed at such a low level that the houses soon fell into disrepair and the areas have become slum regions.

In 1939 the average size of the German household was four persons in small cities, and three in larger ones. There were more dwellings per person in the larger cities than in the smaller.

The Nazis have treated the housing problem as one of secondary importance and have adopted many short-cut methods to create additional dwellings. The most common is the subdivision of large empty dwellings. They have also subsidized the construction of small suburban settlements, and the erection of cheap dwellings for low wage earners. All normal housebuilding ceased 15 March 1943.

Aerial bombardment has created further housing shortages and in many areas families have been forced to "double-up." Attempts at emergency housing have as yet failed completely to keep up with the demand. The emergency dwellings are extremely primitive and lack both lighting and plumbing.

4. Billeting, Office Space, Mass Feeding, and Meeting Places in Urban Areas.[1] Billeting facilities exist in all urban areas. All cities have considerable numbers of hotels, schools, and garages which may be so

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[1] In the Appendices will be found further data relating to hotels (Appendix X), schools (Appendix XI), museums (Appendix XII), churches (Appendix XIII), garages (Appendix VI), restaurants (Appendix XIV), motion picture theaters (Appendix XV), and ice plants (Appendix XVII).

used. Many have barracks, warehouses and other large storage or exhibition hall facilities that can be made available. Open spaces--as parks, gardens, pasture land--within or in close proximity to the cities may be taken over at slight inconvenience.

Office space can be made available in hotels, schools, garages, abandoned warehouses, automobile salesrooms, and administrative buildings of the Nazi Party.

Many restaurants, coffee houses, and beer parlors exist and can be employed as centers for mass feeding. Mobile kitchens, similar to those now used in bombed out areas in Germany, can be set up in the large open squares or in parks within the city. Ice plants are available in nearly all large cities.

Seating space for large numbers of people exist in the theaters, cinemas, open-air sports places, and parks. The central squares can accommodate many people if mass meetings are necessary.

5. Barracks in the Vicinity of Urban Areas, 1943. Barracks exist in the suburbs of many of the cities in Central Germany, particularly in the vicinity of military airfields. Information is scanty as to number and capacity of these barracks areas but the following data is available.

Braunschweig

There are six barracks areas in Braunschweig: west of the city (one, small); northeastern section (one, small); southeastern section (one, large); southeast of the city (three, medium-sized).

Dessau

In close proximity to the airfield west of Dessau are six barracks areas: northwestern suburbs (two, large); western suburbs (one, small; one, medium-sized); southwestern suburbs (two, medium-sized).

Eisenach

North-northeast of the center of the city near the athletic grounds on the road to Kassel are the main barracks for troops in the Eisenach district, three to four two- to three-story concrete barracks, for a full regiment. There is a radio mast.

Gotha

It is possible that some of the buildings between the hangars and the Gotha-Molschleben road are workshops, barracks, and quarters for the use of the GAF airfield.

Halberstadt

There are many barracks in Halberstadt and a large garrison. South of the city is an airfield and some new barracks.

Halle

Halle has some barracks and a large garrison. The city serves as district headquarters of the Army. There is a large barracks area near the airfield west of the city, two small areas in the southern part of the city, and two small areas in the northern part.

Magdeburg

There are many barracks in and around the city. New barracks and military depots have been built east of the Elbe on the former Crakauer Flugplatz (airfield). In 1943 there were three large barracks areas on the east side of the Elbe, one medium area on the north end of the island in the river, one small area directly south of the large marshalling yards adjacent to and west of the old city, one medium-sized area north of the yards and old city, and one small area west of the yards and in Wilhelmstadt.

No information is available for Erfurt, Gera, Jena, and Weimar, although it is assumed all have barracks areas.

C. Communications (Map No. 3069)

The Central Industrial Region does not differ markedly from the rest of Germany in the distribution and administration of communications. The administration of all communications activities except radio is centered in five Postal Administrative Districts (there are forty-seven in Greater Germany today). The president of each district is responsible to the Reichspostministerium (State Postal Ministry) in Berlin.

1. Postal, Telephone, and Telegraph Services. The complete management of the postal, postal checking, postal transport, telephone, and telegraph services as well as the technical operation of the radio broadcasting system is under the Reichspost (Map No. 3099). Each district president is responsible for all types of Reichspost activity within his district. An exception to this rule is the Postal Savings system, in which the local offices are responsible to the headquarters of the Postal Savings system in Vienna. The Postal Savings System originated as a popular savings device in Austria and after the Anschluss (1938) was incorporated into the Reichpost Ministry. Although the rate of interest paid on accounts is lower than that paid by ordinary savings banks, it is more than compensated by the advantages to the small depositor in the minimum balance required (one RM is acceptable), in the convenient facilities of transaction through any official post office, and in the greater security offered by government investments.

Another of the special services provided by the Reichspost is the Postal Checking System. It was at first intended to serve persons whose means did not warrant the opening of a bank account. The obvious advantages of such a service to business houses,

Table 14. POST OFFICES AND POSTAL INFORMATION

NUMBER OF POST OFFICES, 31 MARCH 1939

Postal District	Main P.O.	Branch P.O.	Railway P.O.	Postal Checking Offices	Postal Agencies	Rural P.O.	Mailing Offices	Total
BRAUNSCHWEIG	50	26	--	--	170	693	111	1,050
ERFURT	108	96	--	1	269	1,415	122	2,011
HANNOVER	53	58	1	1	227	1,096	81	1,517
LEIPZIG	141	99	2	1	382	1,634	54	2,313
MAGDEBURG	78	37	1	1	292	611	270	1,290
TOTALS	430	316	4	4	1,340	5,449	638	8,181

Note: Railway post offices are permanent installations for the relaying of mail at important rail junctions. Postal checking offices are central collection and bookkepping agencies for the Postal Checking system, which is handled at the depositors' level by the regular post offices.

POSTAL BUSINESS, 1 APRIL 1938 - 31 MARCH 1939
(Figures in thousands unless otherwise noted)

Postal District	Letters, small pkgs., etc. (millions)	Ordinary pkgs.	Insured pkgs.	Insured Letters	C.O.D. pkgs.	Newspapers (millions)
BRAUNSCHWEIG	91.4	3,806	24	52	1,908	7.0
ERFURT	233.6	14,028	80	82	4,835	20.2
HANNOVER	173.4	6,718	51	112	2,674	26.5
LEIPZIG	349.5	19,542	118	128	4,502	40.3
MAGDEBURG	161.6	6,454	53	69	2,990	11.0
TOTALS	1,009.5	50,648	326	443	16,909	105.0

Table 14. Post Offices and Postal Information (continued)

POSTAL BANKING, 1 APRIL 1938 - 31 MARCH 1939

Postal District	Number of Check Depositors	Money Orders & Deposits		Withdrawals		Bills Collected (thousands)
		Thousands	Millions RM	Thousands	Millions RM	
BRAUNSCHWEIG	13,199	5,786	254	2,228	126	57
ERFURT	35,527	12,948	600	4,866	277	144
HANNOVER	25,662	8,197	522	3,148	172	81
LEIPZIG	52,777	16,454	868	6,731	327	149
MAGDEBURG	23,506	10,251	590	3,953	224	90
TOTALS	150,671	53,636	2,834	20,926	1,126	1,013

POSTAL TRANSPORT, 1 APRIL 1938 - 31 MARCH 1939

Postal Districts	Overhaul Workshops	Principal Transport Lines (km.)	Rural Bus Lines (km.)	Total Passengers Carried (thousands)
BRAUNSCHWEIG	1	1,057	2,555	1,739
ERFURT	1	2,256	4,903	5,061
HANNOVER	1	1,941	5,182	1,932
LEIPZIG	2	1,884	6,019	5,709
MAGDEBURG	1	1,281	3,550	2,922
TOTALS	6	8,419	22,209	17,363

Table 15. TELEPHONE AND TELEGRAPH STATISTICS

TELEPHONE OFFICES
(31 March 1939)

Postal Districts	Main Telephone Offices	Communal Public[1] Telephone Offices	Total Offices	Telephone Exchanges
BRAUNSCHWEIG	1	98	99	93
ERFURT	1	347	348	210
HANNOVER	1	364	365	183
LEIPZIG	2	401	403	192
MAGDEBURG	1	172	173	199
TOTALS	6	1,382	1,388	877

TELEPHONE STATIONS
(31 March 1939)

Postal District	Subscribers' Telephones	Of which automatic	Telephone Extensions	Public Telephones	Total Telephones
BRAUNSCHWEIG	27,788	18,764	19,722	1,282	48,792
ERFURT	56,004	43,646	43,112	2,751	101,867
HANNOVER	51,080	45,472	33,446	2,201	86,727
LEIPZIG	90,725	87,598	73,787	3,721	168,233
MAGDEBURG	49,398	38,201	34,886	1,872	86,156
TOTALS	274,995	233,681	204,953	11,827	491,775

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1. Villages (Communes) which have only one telephone located in a central office for the entire community.

Table 15. Telephone and Telegraph Statistics (continued)

TELEPHONE TRAFFIC
(1 April 1938 - 31 March 1939)

Postal District	Local Calls (millions)	Long-distance Calls (millions)	Total Calls (millions
BRAUNSCHWEIG	27.9	5.5	33.4
ERFURT	52.5	10.7	63.2
HANNOVER	57.9	7.9	65.8
LEIPZIG	103.9	13.9	117.8
MAGDEBURG	47.9	8.8	56.7
TOTAL	209.1	46.8	336.9

TELEGRAPH OFFICES
(31 March 1939)

Postal District	Main Offices	Branch Offices	Rural Offices	Total Offices	Telegraph Construction Offices
BRAUNSCHWEIG	--	--	--	--	2
ERFURT	--	--	17	17	4
HANNOVER	--	--	4	4	2
LEIPZIG	1	--	--	1	4
MAGDEBURG	--	--	3	3	2
TOTALS	1	0	24	25	14

TELEGRAPH TRAFFIC
(1 April 1938 - 31 March 1939)

Postal District	Telegrams (thousands)
BRAUNSCHWEIG	216.2
ERFURT	507.6
HANNOVER	439.8
LEIPZIG	765.3
MAGDEBURG	381.6
TOTALS	2301.5

however, soon made it popular with even the largest business concerns. Transactions can be made at any Postal Checking Office, located anywhere in Germany. Payments in cash and withdrawals are only a secondary activity.

The Reichspost also maintains a motor transport system for a passenger, as well as mail, interurban and rural service. Motor postal lines connect the villages of the lowlands which are served by railroad but are isolated from each other and others carry mail and passengers across country to localities where railroad connections or other transport facilities are deficient.

Because few local statistics are available, it has been necessary to include data on postal, telephone and telegraph services for the area covered by the five Postal Districts of Leipzig, Hannover, Braunschweig, Magdeburg, and Erfurt. This area is considerably larger than the region covered by the rest of the guide. Tables 14 and 15 indicate the intensity of Reichspost business in these five districts. (See also the four maps--Numbers of Telegrams, Regular Parcel Post Packages, Average Number of Letters, and Telephones).

2. Radio. German broadcasting (BC) stations are operated by the Reichspost but supervision and provision of programs is handled by the Reichs Rundfunk Gesellschaft (RRG), a government-controlled corporation under the Propaganda Ministry. The only broadcasting station in the Central German area is the 500-watt, 1330-kilocycle Gleichwelle (multiple transmission in four or five places on the same frequency) station at Magdeburg. This station is part of "Norddeutsche Gruppe." This chain of stations, all broadcasting at 1330-kc, includes Hannover and Magdeburg in the Central German Industrial Region, in addition to Stettin, Flensburg, and Unterweser.

On 1 April 1941 there was a total of 1,201,774 radio receiving sets in the Central German area, with the following distribution:

Administrative Districts[1]	Radio Sets Total	Radio Sets Per 100 households
ANHALT (entire)	100,920	76.7
HANNOVER	39,630	67.7
BRAUNSCHWEIG	130,305	73.3
SAXONY	670,996	70.8
THURINGIA	259,923	71.7

It is significant that approximately 75 percent of the population can be reached by radio communication. The percentages of radio sets per 100 households is larger in the Stadtkreise of Jena (87.2), Weimar (82.1), Merseburg (81.6) and Halle (81.3) but even in the more outlying areas there are only two Landkreise, Mühlhausen (48.1) and Worbis (48.3), which fall below 50 percent and only three more, Heiligenstadt (52.0), Eisenach (55.5) and Langensalza (59.3), below 60 percent. (See Map of Radio Receivers).

The German Drahtfunk (wired wireless) offers static-free reception by means of high-frequency transmission over telephone wires. This system was more highly developed in the Postal District of Leipzig than in any other part of Germany.

There are no Fixed Point (FX) or Coastal (FC) stations in the Central German Industrial Region. German FX stations were all located near Berlin.

The following table lists the aeronautical stations in the German Industrial District.

TABLE

AIRFIELD STATIONS IN GERMANY

		Power (watts)	Radio Beacon	Direction Finder
Braunschweig	DIP	100		(A)
Erfurt	DIA	100, 300	x	(A)
Halle-Leipzig	DDL	100, 300	x	(P)
Magdeburg	DYM	100		(A)

A - Auxiliary Direction Finder P - Principal Direction Finder

3. Newspapers. The Central Industrial Region had at least 234 daily newspapers in 1937, with a circulation exceeding 1,050,000. In addition, papers from Berlin, Dresden, Hannover, Leipzig, and Kassel had wide circulation in the region, bringing the total circulation of all daily papers to about 1,500,000.

In accordance with the general policy of the German government with regard to newspapers, about 100 newspapers were eliminated between 1937 and 1939. Wartime restrictions have caused further reductions. Since March 1943, cities with populations under 100,000 have been permitted as a rule, to print only one newspaper and many small, local papers have been merged with larger papers. In general, papers with large circulation have absorbed those with low circulation and papers of the National Socialist Party have absorbed those with no apparent party affiliations. By the end of 1943, the number of papers in circulation in the Central German Industrial Region had been reduced to not more than seventy or eighty. Despite the reduction, circulation had increased until it was about 10 percent greater than at the outbreak of war.

In addition to the seventy or eighty local papers, several dailies from cities in neighboring regions are circulated in the Central Industrial Region. The most widely circulated paper from outside the region is the National Socialist Völkischer Beobachter from Berlin. The Dresdner Zeitung and the Freiheitskampf (Dresden), the Kurhessischer Landeszeitung (Kassel) and the Thüringer Tageszeitung (Hildburghausen) also have wide circulation.

Most of the principal papers of the Central

Industrial Region still exist, but many of them have expanded through absorption of other papers and some have changed their names. The case of the Thüringer Gauzeitung is probably typical. It was printed in Weimar (where it had a circulation of 11,644 in early 1937), and also in a number of other towns, including Altenburg, Eisenach, Gera, Gotha, Jena, and Mühlhausen. Until 1 April 1943, there were issues of this paper in twelve cities. After that date, the eleven side issues were absorbed by other papers and a similar absorption took place in the case of eighteen other papers in Thüringen. Another typical example of changes that have taken place is that of the Hannoverscher Anzeiger (circulation 85,00), which was acquired in 1943 by the National Socialist Niedersächische Tageszeitung (circulation 56,000); the two papers were then merged and issued under the name Hannoversche Zeitung.

A list of the principal papers of the Central Industrial Region, most of which are probably still in existence appears in Table 16.

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Table 16. MAJOR NEWSPAPERS OF THE CENTRAL INDUSTRIAL REGION

Printed in	Name of Paper	Circulation (1936/37) Local	 Total	Remarks
Braunschweig	Braunschweiger Allgemeiner Anzeiger		24,000	The B.A.A. and possibly the B.N.N. has probably been suspended.
	Braunschweiger Neueste Nachrichten		26,995	
	Braunschweiger Landeszeitung*		34,870	
Dessau	Anhalter Anzeiger		16,082	A.A. has probably been absorbed by party paper, but its name may have been retained.
	Der Mitteldeutsche*	19,300	125,000	
Eisenach	Eisenacher Tagespost		12,723	E.T. probably still exists.
Erfurt	Mitteldeutschland*	26,000	63,000	The M. is still in existence and the T.A.Z. is probably in existence also.
	Thüringer Allgemeine Zeitung		33,584	
Gera	Geraer Zeitung		19,714	The G.Z. may still exist but has probably been amalgamated with Thüringer Gauzeitung.*
Gotha	Gothaisches Tageblatt		5,105	The G.T. has probably been amalgamated with the T.G.
	Thüringer Gauzeitung*	12,425	66,738	
Halberstadt	Halberstädter Zeitung		13,098	The H.Z. has probably been absorbed by the M.
	Der Mitteldeutsche*	8,800	125,000	
Halle	Hallische Nachrichten		46,000	Both party papers probably still exist. The H.N. may have been absorbed by one of them.
	Mitteldeutsche National-Zeitung*		67,000	
	Mitteldeutschland/Saale-Zeitung*		63,000	

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Table 16. Major Newspapers of the Central Industrial Region (continued)

Printed in	Name of Paper	Circulation (1936/37) Local	Circulation (1936/37) Total	Remarks
Jena	Jenaer Volksblatt		9,201	The party paper has probably absorbed the other two, but it may have taken the name of one of them.
	Jenaische Zeitung		7,631	
	Thüringer Gauzeitung*	6,624	66,738	
Köthen	Köthensche Zeitung		6,404	The K.Z. has probably been absorbed by the M.
	Der Mitteldeutsche*	8,600	125,000	
Magdeburg	Magdeburger General-Anzeiger		65,954	The M.Z. has probably been absorbed but the other two papers still exist. The M. no longer appears under its former name, having either changed its name or else been absorbed by another party paper.
	Magdeburgische Zeitung		15,150	
	Der Mitteldeutsche*	44,000	125,000	
Merseburg	Mitteldeutsche National-Zeitung*	7,800	67,600	The M/M.Z. has probably absorbed the M.N.Z.
	Mitteldeutschland/Merseburger Zeitung*	14,000	63,000	
Mühlhausen	Mühlhauser Anzeiger		12,000	The M.A. probably still exists.
Nordhausen	Nordhäuser Allgemeine Zeitung		9,706	The N.A.Z. has probably been absorbed by the N.Z.
	Nordhäuser Zeitung		16,460	
Weimar	Allgemeine Thüringische Landeszeitung Deutschland		17,924	The A.T.L.D. probably has been absorbed by the T.G.
	Thüringer Gauzeitung*	11,644	66,738	

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Table 16. The Major Newspapers of the Central Industrial Region (continued)

Printed in	Name of Paper	Circulation (1936/37) Local	 Total	Remarks
Weissenfels	Mitteldeutsche National-Zeitung*	6,050	67,600	The M.N.Z. has probably absorbed the W.T.
			9,000	
Zeitz	Mitteldeutsche National Zeitung*	9,300	67,600	The M.N.Z. has probalby absorbed the Z.N.H.
	Zeitzer Neueste Nachrichten		9,300	

*. Those papers which are marked with an asterisk are National Socialist Party organs.

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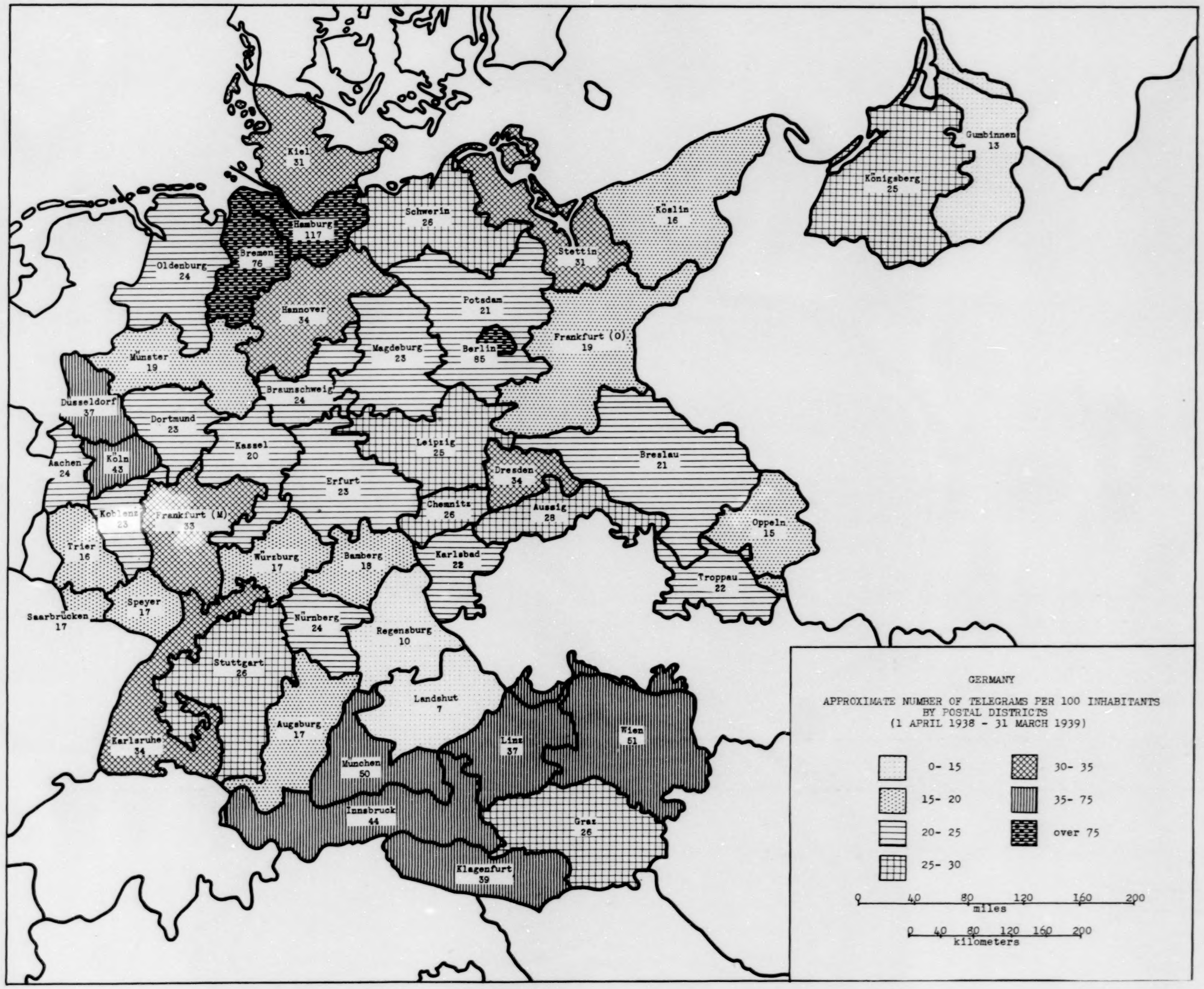
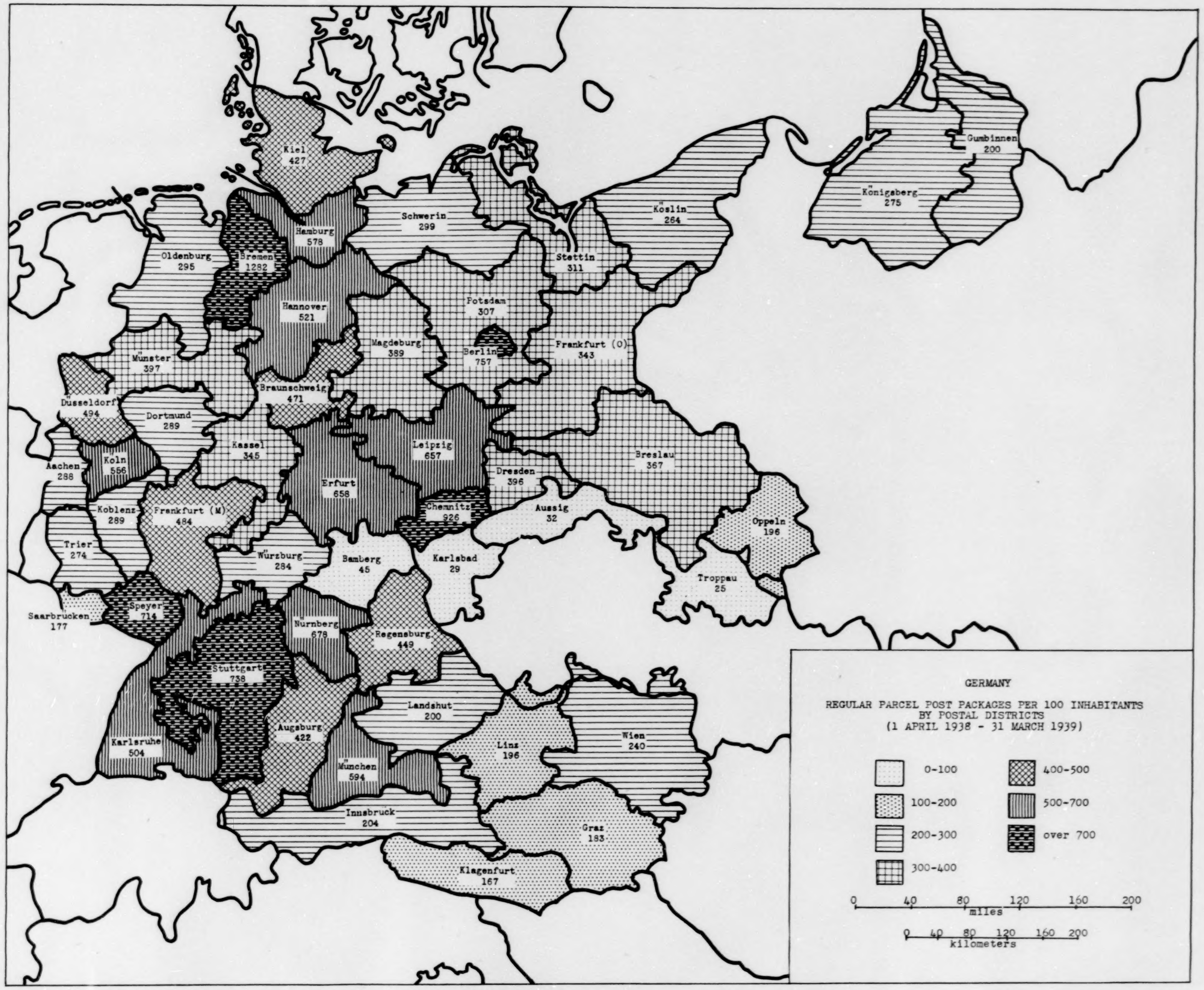

GERMANY
APPROXIMATE NUMBER OF TELEGRAMS PER 100 INHABITANTS
BY POSTAL DISTRICTS
(1 APRIL 1938 - 31 MARCH 1939)
0- 15
15- 20
20- 25
25- 30
30- 35
35- 75
over 75
0 40 80 120 160 200
miles
0 40 80 120 160 200
kilometers
Kiel 31
Hamburg 117
Bremen 76
Oldenburg 24
Schwerin 26
Stettin 31
Köslin 16
Königsberg 25
Gumbinnen 13
Hannover 34
Potsdam 21
Frankfurt (O) 19
Berlin 85
Magdeburg 23
Münster 19
Braunschweig 24
Dusseldorf 37
Dortmund 23
Kassel 20
Leipzig 25
Breslau 21
Aachen 24
Köln 43
Erfurt 23
Dresden 34
Chemnitz 26
Aussig 28
Oppeln 15
Koblenz 23
Frankfurt (M) 33
Trier 16
Würzburg 17
Bamberg 18
Karlsbad 22
Troppau 22
Speyer 17
Saarbrücken 17
Nürnberg 24
Regensburg 10
Stuttgart 26
Landshut 7
Augsburg 17
Karlsruhe 34
München 50
Linz 37
Wien 51
Innsbruck 44
Graz 26
Klagenfurt 39

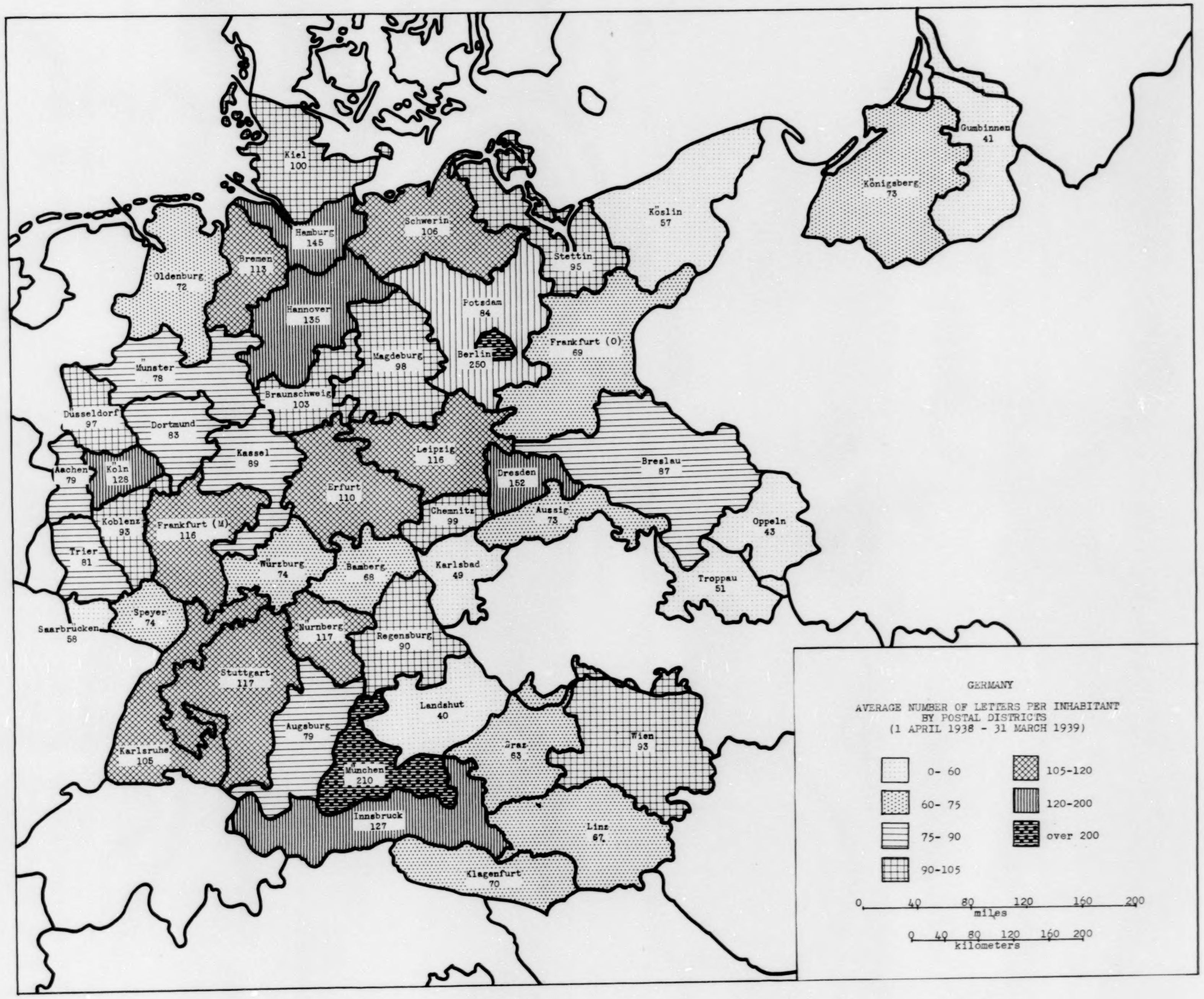
MAP 2


Kiel 427
Oldenburg 295
Bremen 1282
Hamburg 578
Schwerin 299
Stettin 311
Köslin 264
Königsberg 275
Gumbinnen 200
Hannover 521
Münster 397
Magdeburg 389
Potsdam 307
Berlin 757
Frankfurt (O) 343
Düsseldorf 494
Dortmund 289
Braunschweig 471
Aachen 288
Köln 556
Kassel 345
Erfurt 658
Leipzig 657
Dresden 396
Breslau 367
Koblenz 289
Frankfurt (M) 484
Chemnitz 926
Aussig 32
Oppeln 196
Trier 274
Würzburg 284
Bamberg 45
Karlsbad 29
Troppau 25
Saarbrücken 177
Speyer 714
Nürnberg 678
Regensburg 449
Stuttgart 738
Landshut 200
Wien 240
Karlsruhe 504
Augsburg 422
Linz 196
München 594
Innsbruck 204
Graz 183
Klagenfurt 167
0-100
100-200
200-300
300-400
400-500
500-700
over 700
0 40 80 120 160 200
miles
0 40 80 120 160 200
kilometers

GERMANY

REGULAR PARCEL POST PACKAGES PER 100 INHABITANTS
BY POSTAL DISTRICTS
(1 APRIL 1938 - 31 MARCH 1939)

MAP 4

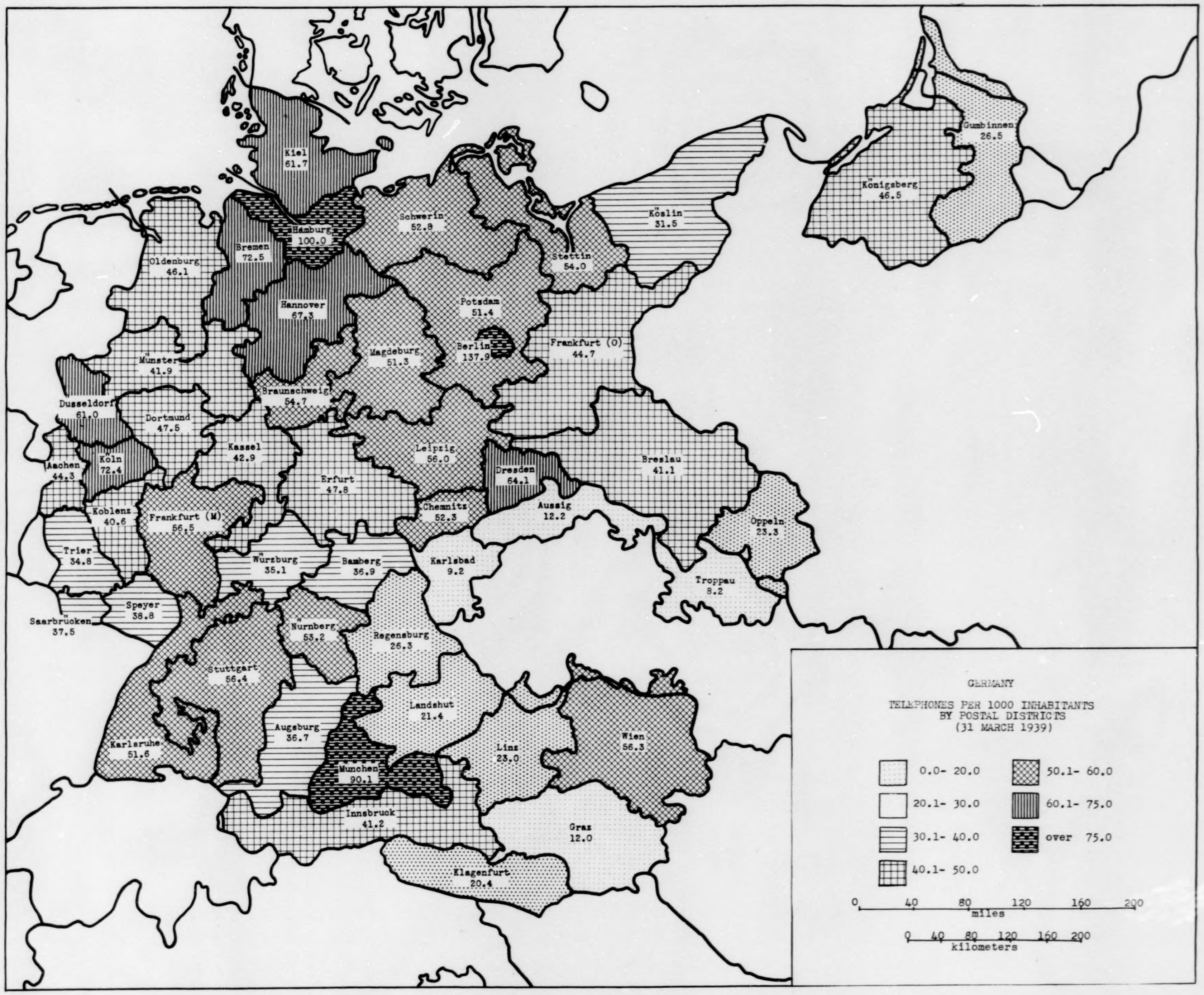


GERMANY

AVERAGE NUMBER OF LETTERS PER INHABITANT BY POSTAL DISTRICTS (1 APRIL 1938 - 31 MARCH 1939)

0- 60
60- 75
75- 90
90-105
105-120
120-200
over 200
0 40 80 120 160 200
miles
0 40 80 120 160 200
kilometers
Kiel 100
Hamburg 145
Schwerin 106
Stettin 95
Köslin 57
Königsberg 73
Gumbinnen 41
Oldenburg 72
Bremen 113
Hannover 135
Potsdam 84
Berlin 250
Frankfurt (O) 69
Münster 78
Magdeburg 98
Braunschweig 103
Düsseldorf 97
Dortmund 83
Kassel 89
Leipzig 116
Dresden 152
Breslau 87
Aachen 79
Köln 128
Erfurt 110
Chemnitz 99
Aussig 73
Oppeln 43
Koblenz 93
Frankfurt (M) 116
Trier 81
Würzburg 74
Bamberg 68
Karlsbad 49
Troppau 51
Saarbrücken 58
Speyer 74
Nürnberg 117
Regensburg 90
Stuttgart 117
Landshut 40
Augsburg 79
Karlsruhe 105
München 210
Graz 63
Wien 93
Innsbruck 127
Linz 67
Klagenfurt 70

MAP 3

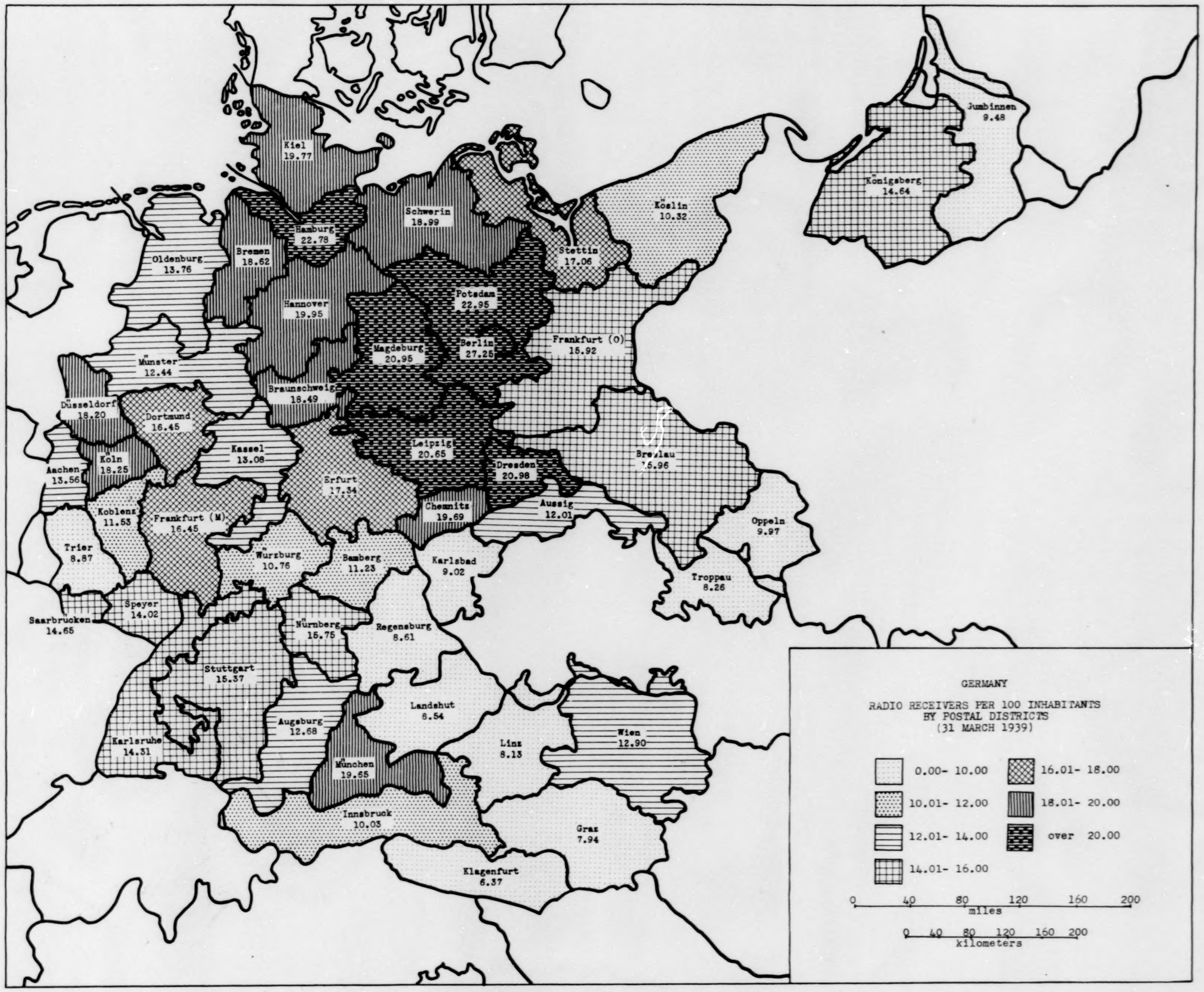


GERMANY

TELEPHONES PER 1000 INHABITANTS
BY POSTAL DISTRICTS
(31 MARCH 1939)

0.0- 20.0
20.1- 30.0
30.1- 40.0
40.1- 50.0
50.1- 60.0
60.1- 75.0
over 75.0
0 40 80 120 160 200
miles
0 40 80 120 160 200
kilometers
Kiel 61.7
Hamburg 100.0
Bremen 72.5
Oldenburg 46.1
Hannover 67.3
Schwerin 52.8
Stettin 54.0
Köslin 31.5
Königsberg 46.5
Gumbinnen 26.5
Potsdam 51.4
Berlin 137.9
Magdeburg 51.3
Frankfurt (O) 44.7
Münster 41.9
Braunschweig 54.7
Dusseldorf 61.0
Dortmund 47.5
Kassel 42.9
Leipzig 56.0
Dresden 64.1
Breslau 41.1
Aachen 44.3
Köln 72.4
Erfurt 47.8
Chemnitz 52.3
Aussig 12.2
Oppeln 23.3
Koblenz 40.6
Frankfurt (M) 56.5
Trier 34.8
Würzburg 35.1
Bamberg 36.9
Karlsbad 9.2
Troppau 8.2
Saarbrücken 37.5
Speyer 38.8
Nürnberg 53.2
Regensburg 26.3
Stuttgart 56.4
Landshut 21.4
Linz 23.0
Wien 56.3
Karlsruhe 51.6
Augsburg 36.7
München 90.1
Innsbruck 41.2
Graz 12.0
Klagenfurt 20.4

MAP 1


GERMANY

RADIO RECEIVERS PER 100 INHABITANTS
BY POSTAL DISTRICTS
(31 MARCH 1939)

0.00- 10.00
10.01- 12.00
12.01- 14.00
14.01- 16.00
16.01- 18.00
18.01- 20.00
over 20.00
0 40 80 120 160 200
miles
0 40 80 120 160 200
kilometers
Kiel 19.77
Hamburg 22.78
Schwerin 18.99
Stettin 17.06
Köslin 10.32
Königsberg 14.64
Jumbinnen 9.48
Oldenburg 13.76
Bremen 18.62
Hannover 19.95
Potsdam 22.95
Berlin 27.25
Magdeburg 20.95
Frankfurt (O) 15.92
Münster 12.44
Braunschweig 18.49
Düsseldorf 18.20
Dortmund 16.45
Kassel 13.08
Leipzig 20.65
Dresden 20.98
Breslau 15.96
Aachen 13.56
Köln 18.25
Erfurt 17.34
Chemnitz 19.69
Aussig 12.01
Oppeln 9.97
Koblenz 11.53
Frankfurt (M) 16.45
Trier 8.87
Würzburg 10.76
Bamberg 11.23
Karlsbad 9.02
Troppau 8.26
Saarbrücken 14.65
Speyer 14.02
Nürnberg 15.75
Regensburg 8.61
Stuttgart 15.37
Landshut 8.54
Augsburg 12.68
Karlsruhe 14.31
München 19.65
Linz 8.13
Wien 12.90
Innsbruck 10.03
Graz 7.94
Klagenfurt 6.37

MAP 5

V. ECONOMIC CONTROLS

Control of German economy is exercised by government agencies and business organizations. The governmental control institutions are attached or subordinated to the Ministries of Armament and Munitions, Economics, Agriculture, and Forests (discussed above under II A2). To an increasing extent control has been delegated to business organizations (see below under A). The setup is somewhat similar to the traditional division of German administration into bureaucratic and self-governing units. Frequently, existing voluntary business organizations, such as cartels have been transformed into governmental agencies. Other cartels and syndicates exert economic control outside the governmental sphere (described under B). Finally, large sectors of German economy are *de facto* controlled by the major German combines (listed under C).

A. Governmental Control through Business Organizations

The history of German economic controls shows a definite trend towards the employment of business organizations as governmental agencies. Because of the war, more and more economic controls were removed from the jurisdiction of the Reich Minister of Economics and the Four Year Plan authorities and subordinated to the Reich Minister of Armament and Munitions. The result of these reforms is rather confusing. Some industries, less closely connected with the war effort, are "retarded" in an earlier stage of reform than the war industries. However, even among the war industries, the structure of controls is not uniform.

1. Main Committees and Industrial Rings. In addition to the Armament Inspections (described above under II A2k),

the Ministry of Armaments and Munitions works through Main Committees (Hauptausschüsse) and Industrial Rings (Industrie Ringe). These agencies were established for the purpose of rationalizing armament production. For finished products whose parts are manufactured by several branches of industry, fourteen main committees were created, such as for general armament, munitions, armed vehicles, power and dynamite, and shipbuilding. These fourteen main committees are subdivided into twenty-six special committees (Sonderausschüsse) with 245 Working Committees (Arbeitsaausschüsse). For articles that are used in a varisty of finished products, such as ball bearings, Industrial Rings were established. Rings are responsible especially for standardization of such armament commodities.

2. Steering Spheres. The control system for industries outside the armament field was revised late in 1942. The goal of this reform was to subordinate every enterprise to one of twenty-two steering spheres (Lenkungsbereiche). One such sphere may include several Economic Groups (Wirtschaftsgruppen - see below under 3). However, no group can be subordinated to more than one National Board (Reichsstelle - see below under 5). In most instances, the National Commissioner (Reichsbeauftragter) of the appropriate National Board heads the steering sphere. His tasks include planning and direction of production, and control of import, export, and raw material. He delegates the preparation of production plans, distribution of quotas, and other details to the Groups or other marketing organizations such as cartels or syndicates,

or he creates special Management Offices (Bewirtschaftungsstellen). There are three types of Steering Spheres.

a) The following Spheres are headed by National Commissioners of National Boards: metals and casts, precious metals, hardware, chemicals, fuels, industrial fats, rubber and smokeblast, textiles, clothing, leather, paper and printing, glass and ceramics, timber goods, timber construction, stone and earth, tobacco and coffee;

b) Three Spheres are headed by leaders of Economic Groups functioning as National Commissioners: machine construction, electrical engineering, precision and optical instruments;

c) Three others are operated by National Associations (Reichsvereinigungen - see below under 4): coal, iron products, and shoes.

Five industries have only National Boards, but no Steering Spheres: mineral oils, furs, potash and salts, technical products, and power.

Some of the Management Offices have a special Order Distribution Office (Auftragslenkungsstelle) for distribution of contracts.

3. Groups. Every German business enterprise, public or private, is required to belong to a so-called Group (Gruppe). The entire German economy is divided into seven National Groups (Reichsgruppen): Industry, Commerce, Trades, Banking, Insurance, Power, and Tourist Industry. These National Groups are subdivided into numerous Economic Groups (Wirtschaftsgruppen) with more specialized Trade Groups (Fachgruppen), Sub Trade Groups (Fachuntergruppen), and Regional Groups (Bezirksgruppen).

The Deputy Leader of the National Group "Industry" is Rudolf Stahl of Salzdetfurth AG. As an example of the organizational structure it may be mentioned that the National Group "Industry" has an Economic Group "Mining" with "Brown Coal Mining" as one of its Trade Groups; the latter, in turn, has Mitteldeutschland (seat Halle) among its Regional Groups.

4. National Associations. For a number of industries such as coal, iron, chemical fibers, hemp, textile processing, glass, wire ropes, and shoes, National Associations (Reichsvereinigungen) combine the functions of Groups, of compulsory national peak cartels and of National Boards (see below under 4). Their tasks may include allocation of raw material and of orders, and regulation of marketing conditions.

5. National Boards. In various fields of industry, the Steering Spheres are administered by National Commissioners (Reichsbeauftragte) heading the National Boards (Reichsstellen). These boards were created for the control of commodities, especially raw material, and for the control of foreign currency exchange in connection with imports. They were formerly called Supervision Boards (Ueberwachungsstellen). They now total thirty-one. Most important among these Boards for the Central Industrial Region are the National Boards for Chemicals, Coal, and Potash and Salt. The majority of these boards are located in Berlin. In many instances, the boards allocate quotas of raw material for certain industries to their respective Economic Groups (described above under 3).

6. Examples. Two practical examples illustrate the setup of governmental economic control through business organizations as it affects the Central Industrial Region.

The Economic Group "Precision and Optical Instruments" headed by Paul Henrichs of Carl Zeiss, Jena, functions as a National Board. In his capacity as National Commissioner, Henrichs heads the Steering Sphere. Armaments contracts are distributed by a special order distribution office, the Central Office for Optical and Precision Instruments.

No Steering Sphere has been established for potash and salt. The National Board for raw material control in the field is directed by Mining Councillor (Bergrat) Münicke, the head of the Potash Examination Office (Kaliprüfungsstelle) in Berlin.

B. Cartels and Syndicates[1]

The trend towards governmental control culminated in a program, put into effect in 1942, to decrease the number of private cartels. The goal was a reduction from 2,200 or even 2,500 organizations to about 500. Reports indicate that this task had been almost 90 percent completed by late in 1943. In the iron processing industry alone, there existed 121 cartels. The National Coal Association had eleven regional syndicates. In many instances, a series of cartels was replaced by an Economic Group (see above VA3) or a National Association (above VA4). In the summer of 1943, for example, thirty-five cartels in the field of semi-manufactured metal goods were consolidated in one Trade Group subordinated to the Economic Group "Metal Industry." Sugar firms were compelled to join the Hauptverband der deutschen Zuckerwirtschaft in Berlin and the Magdeburg-Braunschweiger Rohzucker Vereinigung, Magdeburg, as early as 1934.

In the present stage of transition, it is impossible to give an accurate and complete enumeration of cartels and syndicates important for the economy of the Central Industrial Region or to describe their composition. The following major cartels seem still to be in existence: the Deutsche Kalisyndikat GmbH, Berlin, and the Mitteldeutsche Braunkohlensyndikat GmbH, Leipzig. One cartel has its seat in the region, the Verband deutscher Fabriken für Gebrauchs-, Zier- und Kunstporzellan und Keramik in Weimar.

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[1] For further details see OSS R&A No. 2057, The Major German Cartels.

A single firm may belong to a variety of cartels. The firm may produce or deal in a variety of goods and belong to all the corresponding special syndicates and cartels for these goods. Or, in one field of industry, there may be a distribution of functions between various organizations. One cartel may control production, another one internal trade, and a third one export. To give a few examples: Gottfried Lindner AG, (capital, 3,500,000 RM.) Ammendorf near Halle, belongs to Kartellgemeinschaft des deutschen Landmaschinenhandels, Exportgemeinschaft deutscher Landmaschinen Spezialfabriken, Hamburg, Deutsche Lastanhängerexportgemeinschaft, Hamburg, Deutsche Automobil Treuhand GmbH, Vereinigung deutscher Lastanhänger Fabriken, Berlin, Deutsche Wagenbau Vereinigung, Berlin. Gothaer Waggonfabrik (capital, 4,000,000 RM.) is a member of the two last-mentioned organizations and of the Reichsverband der deutschen Luftfahrtindustrie, Berlin. Pantherwerke, Braunschweig, belong to Verband der Kinderwagenfabrikanten, and to Verein deutscher Fahrrad Industrie eV, Berlin. Niederdeutsches Schrauben und Mutterwerk AG, Peine, holds membership in Nietenverband GmbH, Oberschrauben GmbH, Deutsches Handelsschraubensyndikat, all in Düsseldorf. Fahlberg List AG Chemische Fabriken, (capital, 2,500,000 RM.) Magdeburg belong to Deutsche Süsstoff GmbH, Berlin, and Internationales Süsstoff Syndikat, Hamburg. Braunschweiger AG für Jute und Flachsindustrie (capital 2,800,000 RM.)

belongs to the Interessengemeinschaft deutscher Juteindustriebetriebe, and Verband der deutschen Jute Industrie, Berlin.

C. Combines.

Another private system of economic control is still of supreme importance in Germany, namely the powerful large combine. A number of combines have their centers in the Central Industrial Region, others have affiliates among the business concerns of the region (some of the latter are mixed public-private enterprises - mentioned above under IIA3.

Two major German industrial corporations with numerous affiliates outside the region are located in its territory. One is the caustic soda combine Deutsche Solvay Werke AG, (capital, 75,000,000 RM.) in Bernburg, Anhalt. The other is the German aircraft factory Junkers Flugzeug und Motorenwerke AG (capital 130,000,000 RM.) in Dessau, Anhalt.

Local affiliates of other combines in the region are shown in Table 17.[1]

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[1] See OSS R&A No. 1910, Hundred Major German Industrial Corporations.

Table 17. AFFILIATES OF INDUSTRIAL COMBINES

Combine	Affiliate	Capital of Aff. in Mill. RM.	Percent held by Combine
Allgemeine Elektricitäts-Gesellschaft, Berlin	Merseburg Ueberlandbahn AG	3.3	25
	Olympia Büromaschinenwerk AG, Erfurt	4	100
Bergwerksges. Georg von Giesche's Erben, Breslau	Electrolytic plant in Magdeburg-Rothensee	.	.
Deutsche Continental Gas Ges. (Dessauer Gas), Dessau		75	
	Gasversorgung Goldene Aue-Eichsfeld GmbH, Nordhausen	1	33
	Gasvers. Saale in Halle GmbH	1.5	17.5
	Gasvers. Magdeburg-Anhalt GmbH	5	84
	Dessauer Strassenbahn Ges.	1.3	maj.
	Elektrizitätswerk Crottorf AG., near Halberstadt	3	maj.
	El. Werk Sachsen-Anhalt AG, Halle	16	46
	Licht und Kraftwerk Harz GmbH, Osterode	2	100
	Mitteldeutsches Kraftwerk Magdeburg AG	10	30
	Ueberlandzentrale Ostharz AG, Dessau	2	100
	Allgemeine Gas AG, Dessau	7.3	maj.
	AG f. Grundstücks Industriewerte, Dessau	1	100
	Electro Grosshandels AG, Dessau	1.5	100
	Gewerkschaft Elbe, Magdeburg-Rothensee		100

Combine	Affiliate	Capital of Aff. in mill. RM.	Percent held by Combine
Deutsche Erdöl AG, Berlin	MABAG Maschinen & Apparatebau AG Nordhausen	1	100
Dynamit AG vom. Alfred Nobel & Co., Troisdorf	J.F. Eisfeld Pulver etc., Anhalt	.6	65
Electr. Licht & Kraftautagen AG, Berlin	Saale El. Werke GmbH	.	50
	Jenaer El. Werke AG	2.7	52
	Thür. El. Lieferungsges. AG, Gotha	17.6	10
Friedrich Flick KG., Berlin	Anhaltische Kohlenwerke	83	.
Ges. f. Electr. Unternehungen AG, Berlin	AGO Flugzeugwerk GmbH, Oschersleben	4	67.5
Hoesch AG., Dortmund	Gewerkschaft Salzgitter		20
IG Farben, Frankfurt a.M.	Ammoniakwerk Merseburg GmbH	135	100
	Braunkohlenwerk Bruckdorf AG, Halle	2.5	86
	Deutsche Grube AG, Halle	2.5	100
	Aluminiumwerk GmbH, Bitterfeld	.	subst.
Ilseder Hütte, Peine	Peiner rolling mill	42.6	
	Niederdeutsche Schrauben & Mutter werke AG, Peine	.	50
	Ilseder Bank, Peine	.	.
Kali Chemie AG, Berlin	Gewerkschaft Wendland, Gotha		99
Krupp, Essen	Friedr. Krupp Grusonwerk AG, Magdeburg-Buckau	10	100
Mannesmannröhrenwerke, Dusseldorf	Albert Mund- von Cölln GmbH, Magdeburg	.	52

Combine	Affiliate	Capital of Aff. in mill. RM.	Percent held by Combine
Metallgesellschaft AG Frankfurt a.M.	Aluminium GmbH, Bitterfeld	.	50
Reichswerke Hermann Göring für Berg- & Hüttenbetriebe AG, Salzgitter			
	Bergbau AG vorm. Anton Raky, Salzgitter	.	100
	Stahlwerke Braunschweig GmbH	.	100
	Negrella AG, Salzgitter	.	100
	Ferngasges., Braunschweig	.	-
	Steine & Erden GmbH der Reichswerke	.	-
Rheinstahl, Essen	A. Riebeck'sche Montan AG, Halle	50	89
Salzdetfurth AG (Solvay Int.)	Verein. Kaliwerke Salzdetfurth (with plants in Aschersleben)	28	100
	Mansfeld AG f. Bergbau & Hüttenbetriebe, Eisleben	25	98
Schering AG, Berlin	Voigtländer & Sohn AG, Braunschweig	3	99
Siemens & Halske, Berlin	Braunschweiger AG f. Industrie-Beteiligungen	10	50
Thür. Zellwolle, Schwarza		36	
	Spinnstoff GmbH, Schwarza	4	50
	Thür. Rohstoffges., Weimar	.1	25
VIAG (Ver. Ind. Untern. AG Holding Co. of Reich) Berlin	Braunschw. Kohlenbergwerke, Helmstedt	20	49
	El. Werk Sachsen-Anhalt AG, Halle	16	25
	Mitteldtsch. Kraftwerk Magdeburg	10	50

Combine	Affiliate	Capital of Aff. in mill. RM.	Percent held by Combine
VIAG (Ver. Ind. Untern. AG Holding Co. of Reich) Berlin	Ilseder Hütte, Peine	42.6	25
Wintershall AG, Berlin	Burbach Kaliwerke AG, Magdeburg	18	44
	Braunkohlenwerk Bruckdorf, Halle	2.5	10
	Thür. Rohstoff AG, Weimar	1	20
Zellstoffabrik Waldhof, Mannheim	Papierf. Fockendorf GmbH	2.5	98

VI. AGRICULTURE AND FOOD SUPPLY

A. Food Production

1. Agricultural Position of Central Industrial Region. The Central Industrial Region is known primarily for manufacturing, but it is also one of the most productive agricultural regions in Germany (Map No. A3244). The fine-textured, dark-colored chernozem soil of the low-lying regions around Halle, Magdeburg, and Braunschweig is of a fertility unexcelled in Germany. Land values, in the black soil plains of the Central Industrial Region are among the highest in Germany. The great deposits of potash and the synthetic nitrogen plants in the region furnish a local supply of these two essential fertilizers. The principal crops raised are sugar beets, wheat and other grains, potatoes, vegetables, and fruit. About 34 percent of all sugar beets grown in Germany in 1937 were raised in the region. The production of sugar beets is of more than local or even national importance; it affects world markets and has been the subject of international commercial treaties. Wheat, fruit, and vegetable crops of the region are not sufficiently large to affect world markets, but are of national importance because they are produced in quantities sufficient for export to other parts of Germany. Although potatoes comprise one of the major crops of the region, the bulk of the crop is consumed locally.

2. Agricultural Labor. Most agricultural labor in the Central Industrial Region is provided by farmers and their immediate families. A large number of hired workers is employed upon large estates, and some of the freeholding farmers work part time for owners of large estates. All told, there were before the war some 250,000 landholders in the region, most of whom were farmers. They employed 500,000 members of their families (counting only persons over

CENTRAL GERMANY
LAND UTILIZATION

Over 70% | 50-70% | 30-50% | 10-30% — Arable Land

Over 50% | 30-50% | 10-30% | Under 10% — Woodland

Over 50% | 30-50% | 15-30% — Meadows

20-35% | 10-20% — Heath, Moor, and Uncultivated Land

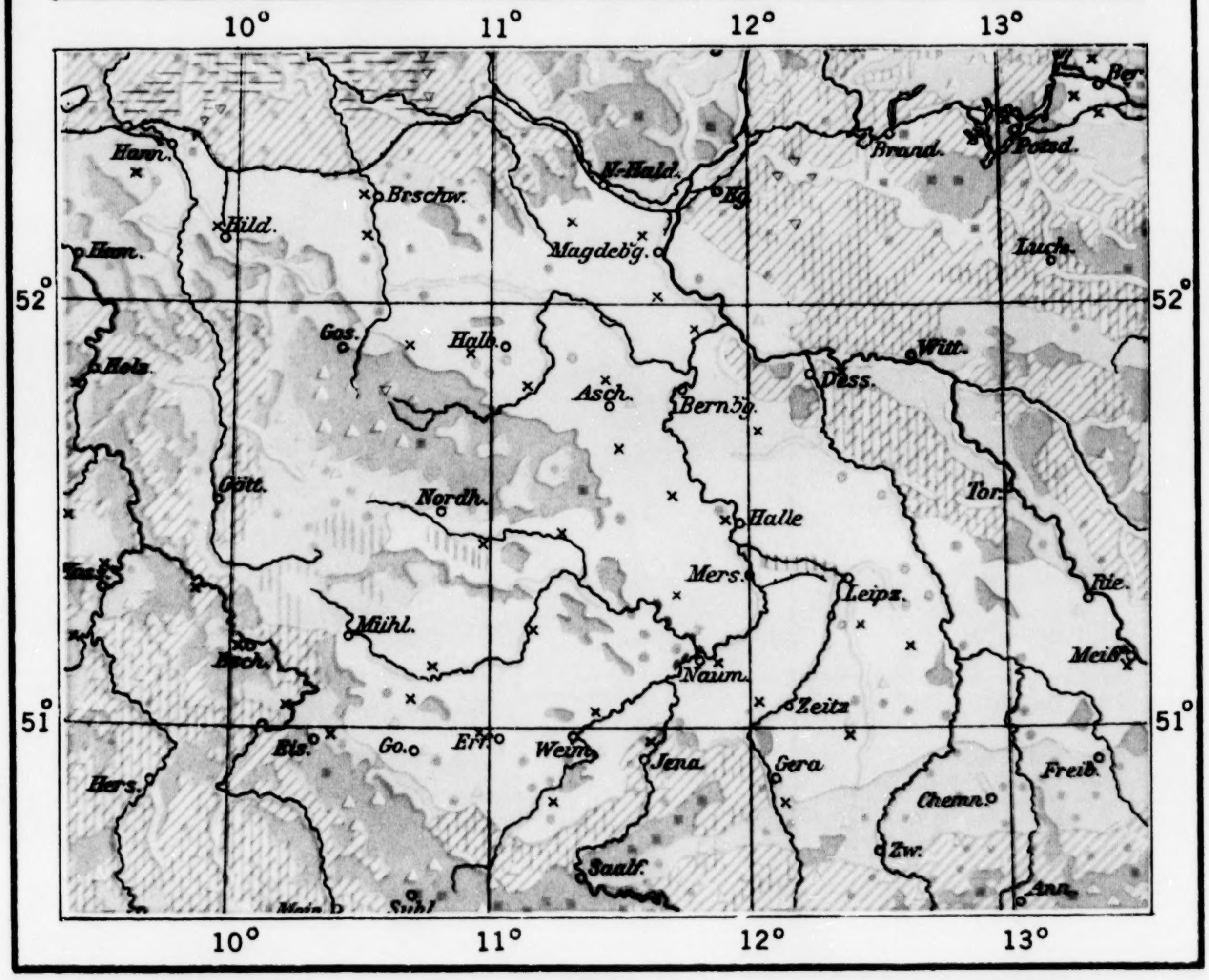
× Important Areas of Fruit, Vegetable and Seed Production

Vine Cultivation

0 50 100 MI.

0 50 100 KM.

FROM: *ATLAS DES DEUTSCHEN LEBENSRAUMES IN MITTELEUROPA*
(PLATE 17)


10°
11°
12°
13°
52°
51°
Hann.
Hild.
Beschw.
N-Hald.
Magdebg.
Bg.
Brand.
Potsd.
Ber.
Ham.
Luck.
Gos.
Halb.
Asch.
Bernbg.
Dess.
Witt.
Holz.
Gött.
Nordh.
Halle
Tor.
Mers.
Leipz.
Rie.
Mühl.
Naum.
Meiß.
Esch.
Zeitz
Eis.
Go.
Erf.
Weim.
Jena
Gera
Freib.
Hers.
Chemn.
Zw.
Saalf.
Suhl
Ann.

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3 APRIL 1944

LITHOGRAPHED IN THE REPRODUCTION BRANCH, OSS

fourteen years of age) and 200,000 hired workers. This totals 950,000 farmers and farm workers, but deductions should be made from this since not all work in the fields; a total of 800,000 to 850,000 farmers and farm workers is probably a more nearly accurate estimate.

The number of landholders in the Central Industrial Region was about 9 percent of that for all Germany but the number of hired workers employed in the region exceeded 11 percent of the number of such workers in Germany.

3. Land Tenure and Size of Farms. The 250,000 agricultural landholdings in the Central Industrial Region, included a total area of about 3,270,000 hectares, of which less than 850,000 are wooded. About 1,600,000 hectares belong to estates of fifth or more hectares. Large estates are particularly characteristic of the lowland wheat and sugar-beet area of Provinz Sachsen, Braunschweig, and Anhalt. Estates of more than fifty hectares covered 1,100,000 hectares out of a total of 2,219,000 in Provinz Sachsen in 1933, 170,000 of 324,000 in Braunschweig, and 120,000 of 205,000 in Anhalt. Large estates are roughly comparable to those of Pommern and Ost Preussen which are owned by hereditary landlords and worked by peasants who receive a large part of their wages in kind. The presence of large estates in the region is partly due to historical reasons but more largely to the particularly complex problems of management and finance involved in the production of sugar beets.

Medium-sized landholdings of twenty to fifty hectares are located chiefly in the foothills on the fringes of the wheat-sugar beet area, while small farms, most of them under ten hectares in size, are characteristic of the hill country in Provinz Sachsen, Thüringen, and in the Harz Mountains. About 70 percent of all the landholders of the Central Industrial Region possess small farms, yet they hold less than 33 percent of the land. As a crop, potatoes are as characteristic of small farms as sugar beets are of the large estates.

The National Socialist Government, working through the Ministry of Agriculture and the affiliated Reichsnährstand, has attempted to encourage the Erbhof system of land ownership which provides that farmland cannot be subdivided in inheritance. By 1938 over 22 percent of the landholders and 30 percent of the land in Provinz Sachsen were included in the Erbhof system.

4. Administration and Research and Experimental Facilities. Agriculture is under the economic control of the Reichsnährstand (National Food Administration) while technical aid and advice is given to farmers by officials of the Ministry of Agriculture and by the departments of agriculture in the universities located in the region.

The economic controls of the Reichsnährstand operate through national and regional associations of food industries. There is, for example, a National Association of the Sugar Beet Industry which controls every aspect of the growing, processing, and marketing of sugar beet and sugar beet products. The National Association acts through the regional sugar associations, of which there are nine. The association for North Sachasen includes the Magdeburg sugar beet region. Anahalt and Thüringen are included in the South Sachsen Association, and Braunschweig in the Northwest German Association.

The associations are responsible for allocating basic production quotas, laying down rules governing contracts between growers and factories, regulating the distribution, manufacture, and marketing of sugar beet products, fixing prices, and providing for the establishment of stockpiles.

The most important agricultural experiment station in the region is that at Klein Wanzleben, eleven miles west-southwest of Magdeburg, which is the best-equipped laboratory in Germany for study of the problems concerned with the cultivation of sugar beets. It distributes seeds to sugar beet growers throughout Germany and conducts research to improve the quality of the beets. There are two other agricultural research stations of primary importance in the region, one operated in connection with the University of Jena and the other by the Reich and local authorities at Braunschweig. Both of these stations carry out experiments in plant physiology, grain, and soil nutrition. Similar but less important stations are located at Aschersleben, Bernburg, and at the University of Halle.

5. Agricultural Subregions

a. The Börde. The Börde (fertile soil) region with dark brown to black soil is the most important agricultural area in Germany. It extends across Central Germany from the neighborhood of Hannover almost to Leipzig. The largest and richest part of this fertile plain lies south and west of Magdeburg and extends west to Halberstadt and south to Köthen. This region, containing about 2,500 square miles, produces one-third of the sugar beets raised in Germany. Wheat and barley are intensively cultivated and fruit and vegetables are grown near the towns. Large numbers of livestock, particularly cattle, are raised in and near the region, with sugar beet pulp and tops being employed extensively as fodder.

b. Thüringen Basin. In the Thüringen Basin, centering on the valleys of the Saale and Unstrut, some wheat and sugar beets are grown, but barley is the staple crop. In some of the valleys soils are exceptionally fertile and fruit and vegetables are raised in large quantities, notably around Erfurt. This area is also the center of Germany's seed production. Barley, oats, and potatoes are the chief crops in the hills surrounding the small lowland areas. Large numbers of cattle and sheep are pastured on the less productive hill lands.

c. Harz Mountains and Adjacent Foothills. The Harz Mountains are heavily forested, but farms are to be found in scattered clearings and along narrow valleys, particularly in the east where elevations are lower. The soil is poor and only unexacting crops can be raised. Oats are the staple crop, supplemented by rye and potatoes. Sheep, goats, and small herds of cattle are grazed on the uncultivated slopes. The agricultural economy of the region is marginal and is constantly threatened by the severity and long duration of winter.

The foothills of the Harz are partly forested, with farmland interspersed with patches of timber. The soil, though more productive than in the Harz, is of low fertility in comparison with that of the Börde. The chief crop is oats, followed by wheat and rye. Potatoes are a staple crop and large numbers of livestock, especially cattle, are pastured throughout the area.

d. East Elbe. The portion of the Central Industrial Region located east of the Elbe is much less fertile than the Börde, but is, nevertheless, a fairly productive agricultural region. Barley and rye are staple crops but some wheat is grown. Potatoes and forage crops are produced throughout the area, and many cattle and sheep are pastured in the meadows. Sugar beet pulp and tops from the nearby Borde are used as a supplementary fodder for the cattle.

6. Major Crops.

a. Sugar Beets. Over 5,300,000 metric tons of sugar beets were produced in the Central Industrial Region in 1937, representing nearly 34 percent of the entire sugar beet production of Germany in that year. Since the outbreak of war the production of sugar beets has been increased in order to help meet Germany's growing needs for sugar, cattle fodder, and industrial alcohol. Before the war Germany produced a large surplus of beet sugar which was exported to foreign countries. Germany's sugar exports helped to depress prices during the early part of the decade 1930-40 when world sugar markets were glutted, and Germany was forced to adhere, for a time, to the Chadbourne Agreement of 1931, whereby the signatory countries agreed to limit their production and exports.

Sugar beets are grown on large estates which are worked by hired laborers. Cultivation of sugar beets is very intensive and has to be done largely by hand. The beets require great quantities of fertilizer, of which potash and nitrogen are produced in the Central Industrial Region. Since the outbreak of war there has been a deficiency of phosphate fertilizer, and the results of the deficiency may now be reflected in lower crop yields. Sugar beets also require rotation to prevent soil exhaustion. Beets are usually rotated with wheat, barley, and fodder crops such as clover. The rotation is commonly a three-year cycle in which beets are grown for one year and cereal crops for two. Beet, barley, and wheat are often rotated in this order.

b. Wheat and Other Grains. Winter wheat is the principal cereal crop raised in the Central Industrial Region, although spring wheat is frequently rotated with sugar beets or planted after a severe winter if the fall sowing is winter-killed. Cultivation of wheat and barley in the flat plain of the Börde is partly mechanized, but expensive modern machinery is used only on large estates and in a few cooperative enterprises. About 860,000 metric tons of wheat were produced in 1937; 620,000 of oats; 580,000 of barley; 560,000 of rye; and 65,000 of mixed grains. This represented 20 percent of the wheat, 15 percent of the barley, 10 percent of the oats, and 8 percent of the rye produced in the German Altreich. The wheat yield per hectare in Central Germany was over 12 percent above the German average. The yields of barley and oats were also somewhat higher than the average but the yield of rye was on a par with that of all Germany.

Grain crops produced in the region were more than sufficient to meet the needs of local consumers and considerable quantities were exported to other parts of Germany.

c. Potatoes. Nearly 5,800,000 metric tons of potatoes were produced in the Central Industrial Region in 1937, representing more than 10 percent of the potato crop of Germany in that year. The production of potatoes has since then been increased slightly to meet wartime needs.

Potatoes, like sugar beets require considerable hand cultivation and large amounts of fertilizer and are rotated with grain crops. Potatoes are raised every third year and grain crops are raised during the intervening years.

d. Vegetables. Vegetables are produced in abundance in the Central Industrial Region, particularly on small garden plots in the vicinity of Braunschweig, Magdeburg, Halle, Erfurt, Weimar, Calbe, and other cities of the region. The region of Erfurt is particularly noted for the production of cauliflower while that of Magdeburg and Calbe is noted for the production of onions. In 1937 the region produced 40,000 metric tons of peas, 2,200 of beans, 6,400 of asparagus, 3,000 of onions, 670 of carrots, and 280 of tomatoes. This represented nearly 40, 33, 30, 45, 12, and 10 percent of the total German production, respectively, of these crops. Vegetable production is more than sufficient to meet local demands and enables the farmers and canners of the region to export fresh and canned vegetables to other parts of Germany.

e. Fruit. In 1937 nearly 140,000 metric tons of apples (20 percent of total German production, 80,000 of plums, 50,000 of pears (12 percent), and 20,000 of cherries (21 percent) were produced in the Central Industrial Region. A large part of the fruit crop is exported to other parts of Germany, either fresh or canned.

f. Other Crops. Other crops are raised in the Central German Industrial Region, but most of them are of minor importance. Small quantities of poor-quality tobacco, and very small amounts of flax and hemp are produced. Less than one percent of Germany's supply of wine grapes and less than one-quarter of one percent of Germany's supply of hops come from here.

7. Livestock and Poultry Production. There were about 1,200,000 head of cattle in the Central Industrial Region in 1936, a little less than 7 percent of Germany's total. The dairy cattle in the region were of high quality (second only to those of Holstein), yielding eight percent of the milk produced in Germany.

Sheep numbered 770,000 and goats 350,000 in the region in 1936, about 19 percent and 14 percent of the German total. About 10 percent (2,300,000) of the total number of swine and a little less than nine percent of the horses (300,000) were raised in the Central Industrial Region.

Poultry are fairly numerous but are raised chiefly for home consumption. In 1937 there were 7,500,000 chickens and hens (9 percent of German total), 450,000 geese (9 percent), and 270,000 ducks (11 percent) in the region.

8. Wartime Changes. Many changes have taken place in

German agriculture since the outbreak of war. Some have had an adverse effect upon agricultural production, but, in the main, crop production has been maintained at a level slightly above the average of that for the five years immediately preceding the war. Potato crops have been a little below average due to drought conditions in 1942 and 1943. Production of fruit has probably been curtailed, however, due to especially severe winters in 1940-41 and 1941-42. About 28 percent of Germany's fruit trees were killed by the cold and it will take some years before the damage can be overcome.

Livestock has suffered more severely from wartime conditions than has crop production. The number of cattle has been maintained almost at prewar level, but the number of sheep has declined by about 10 percent and that of hogs by as much as 35 percent. Decline in numbers of livestock has been due mainly to the lack of supplies of fodder formerly imported from overseas.

There has been a growing shortage of manpower on the farms because many farmers have been conscripted for military service and harvest season furloughs for soldiers have been stopped. Many boys of pre-military age and women have replaced the men. A large number of foreign workers who have no industrial skills have been assigned to work on German farms, and they have shown themselves fairly effective in maintaining agricultural production.

The task of the German farmer has been made more difficult by shortages of machinery and fertilizer. Neither of these factors has yet become serious. Existing agricultural machinery has been kept in repair and enough machinery has been manufactured to meet essential replacement needs. Fertilizer has been supplied by potash mines and nitrogen factories in the region, but a shortage of phosphates has

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8. Wartime Changes. Many changes have taken place in

and Magdeburg, while wineries are located exclusively in smaller towns or in the countryside. Brandy and whisky distilling is centered chiefly at Nordhausen, where there are 36 distilleries, most of them small. There are also ten distilleries at Magdeburg, eight at Erfurt, and six at Halle. Before 1939 beer was imported from Bayern and wine from Hessen to supplement the supplies produced locally, but 40,000 tons of malt and small quantities of spirits were annually exported.

Table 18. LOCATION OF PRINCIPAL FOOD PROCESSING PLANTS

Fruit and Vegetable Canneries.

	No. of plants	Annual prod. (in kilo cans)	Maximum Employment
Braunschweig (largest plants only)	33	120,000,000	4,500 (Aug. to Oct.)
Daubert, Albert		1,500,000	250
Kaspar, Paul		3,000,000	500
Koch, Max		2,000,000	300
Konservenfabrik Braunschweig		2,100,000	300
Lampe, C. Th., GmbH		4,000,000	600
Maseberg, W.		2,000,000	300
Meinicke, Heinrich		3,000,000	500
Querner, A. W.		3,000,000	500
Calvoerde, Braunschweig	3		
Eisenach	1		
Eilsleben (near Magdeburg)	1		
Erfurt	1		
Förderstedt (near Magdeburg)	4		
Gerwisch (near Magdeburg)	1		
Goslar	1		
Halberstadt	3		
Halle	2		
Köthen	2		
Magdeburg	17		
Quedlinburg	2		
Seesen/Harz	3		
Wolfenbüttel	5		

Meat Packing Plants

	No. of plants	Annual prod.	Maximum Employment
Braunschweig	7 (1 meat canning and 6 sausage plants)		900
Braunschweig-Gliesmarode	1 (sausage)		400
Erfurt	1 (meat canning) 4 (mainly sausages, but some canned meat)		850
Oschersleben	1 (sausage)		

Flour Mills (Only mills which produce over 10,000 tons of flour annually are listed.)

	No. of plants	Annual prod.	Maximum Employment
Aken, near Dessau	1		
Alsleben, near Halle	1		
Boellberg bei Halle	1		
Bernburg	1		
Braunschweig	3		
Frose, Anhalt	1		
Calbe	1		
Magdeburg	3	150,000 MT a year	300

	No. of plants	Annual Prod.	Maximum Employment
Edible Oil Plants			
Genthin	1		
Gotha	1		
Halle	1		
Magdeburg	2	270,000 MT crushed seed	
Mellingen (near Weimar)	1		
Ossmannstedt (near Weimar)	1		
Breweries			
Braunschweig	5		
Dessau	3		
Eisenach	1	125,000 hl.	
Erfurt	2		
Goslar	2		
Gotha	1		
Halberstadt	1	40,000 hl.	
Halle	2	120,000 hl. (larger plant only)	
Jena	4	90,000 hl. (larger plant only)	
Köthen	2		
Magdeburg	4	420,000 hl. (total of 2 largest plants)	
Stassfurt	1	60,000 hl.	
Weimar	1		
Wernigerode/Harz	1		
Wittenberg	3		
Zerbst	2		
Distilleries: brandy and whiskey			
Bernburg	3		
Braunschweig	3	200,000 hl. (larger plant only)	
Dessau	4		
Erfurt.	8		
Gera	4		
Gotha	3		
Halberstadt	2		
Halle	6		
Magdeburg	10		
Nordhausen	36		
Wittenberg	4		

VII. MINERAL RESOURCES AND EXTRACTIVE INDUSTRIES

A. Introduction

The mineral resources of the Central Industrial Region differ greatly in the degree to which they supply the needs of the region and contribute to the national economy. Potash, for example, provides a basis for the chemical industry not only of the region, but of Germany, while brown coal resources satisfy virtually all power needs of the area. Similarly, stone, clay, kaolin, and dye earths are adequate for the region. Metallic resources are less plentiful, although recent exploitation of low grade reserves, particularly iron ores, has yielded new supplies. Copper, zinc, and lead are available only in limited quantities. Petroleum resources are very small. Potash, the most important mineral of the region is widely used as a source of fertilizer, as a raw material for the production of magnesium, and in the chemical industry. Germany is the world's largest producer of potash and the major part of her potash reserves is located in the Central Industrial Region. The largest deposit in extent is between the Harz mountains and the Thüringer Wald, (Map No. A3047). Other large resources are in the Stassfurt basin, and the triangular basin between Halle, Mansfeld, and the Unstrut River. Closely allied with potash deposits are resources of salt. The development of the mining of potash is comparatively recent, and has proved one of the bases of the development of the chemical industry in the Central Industrial Region.

The brown coal deposits of the Central Industrial Region are extensive and important. They provide a cheap and easily obtained form of fuel for the industries and power stations of the area as well as a basic raw material for the production of synthetic oil. Brown coal, however, is unsuitable for the smelting of iron ore. There are two major deposits of brown coal in the Central Industrial Region (Map No. A3047). One is roughly the western half of what is known as the Thüringisch-Sächsischer Braunkohlenbezirk, the eastern half of which lies outside of the Central Industrial Region. The major centers of brown coal mining in this area are in the vicinity of Halle, extending south to Zeitz, Meuselwitz and Altenburg, and Bitterfeld. The other large brown coal area is that known as the Braunschweig-Magdeburger Braunkohlenbezirk. These beds extend in a northwest-southeast direction, with the principal mines located near Helmstedt and Schöningen, Egeln and Stassfurt-Leopoldshall, and Aschersleben.

The iron ore resources of the Central Industrial Region are mainly of recent development. One ore center, that in Peine, is quite old, however, but the mines of the Salzgitter region and in the Harz are all comparatively new. The metal content of the ore resources of this region is low, averaging about 27 percent, and while under ordinary conditions this ore would not be mined, exploitation has been undertaken as a part of Germany's efforts towards the development of domestic raw materials. The Salzgitter region is the main center of this development, while the mines in the Harz contribute but a minor portion to the total iron ore mined in the region.

Most of the other metal resources of the Central Industrial Region are found in the Harz mountains. One of the oldest and most important copper mines in Germany is located at Eisleben, near Mansfeld. This mine supplies most of German domestic production of copper. A smaller, yet important deposit is near Goslar, where with the war, the deposits are being exploited with renewed vigor. Lead and zinc are mined together in the Harz, and account for a considerable proportion of domestic supplies of these metals. Most of the mines, however, are not profitable and are aided by heavy government subsidies. Some other metals, such as silver, nickel, selenium, and vanadium, are found in small quantities in the Harz ores.

The Central Industrial Region possesses various resources of limestone, clay, kaolin, dye earths, sand, and glass sand. Limestone, which is particularly valuable as a building material is found in the Thüringian basin. Clay and kaolin are obtained principally near Halle, Bitterfeld and Eisenberg, while sand and glass sand are found near Helmstedt, Wittenberg, Zeitz, Eisenberg, and Halle.

B. Brown Coal in the Central Industrial Region

1. General. Brown coal is a low-grade type of coal, classified between peat and lignite in the United States. The term, however, is more broadly used in Germany, where it covers both true lignite and what is known as "unconsolidated lignitic coal". Brown coal is generally, as its name implies, dark brown in color, and frequently resembles wood in grain and appearance. It is soft, with a high (48-55 percent) moisture content, and is not a high-quality fuel. Two to nine tons of brown coal are necessary to provide the heating value of one ton of bituminous coal, but the coal is adequate, nevertheless, for most industrial and household uses. In Germany, brown coal either in its normal state or in the form of briquettes, is widely used as a source of fuel for electric power plants, and chemical and metallurigical industries, as a raw material in the manufacture of synthetic oil, and for household consumption.

2. Resources. Germany has large brown coal resources, scattered in several different regions of the country. The main fields are those in the Central Industrial Region, in the Nieder-Lausitz Basin of Nieder-Schlesien, in Hessen, and West of Köln. The total brown coal resources of Germany have been estimated (1938) at nearly 57,000,000,000 metric tons, of which nearly 10,000,000,000 tons of workable coal lie in Provinz Sachsen and Thüringen. Available statistics do not

do not provide figures specifically for the fields within the limits of the Central Industrial Region, but some indication of the importance of this area may be gained from the fact that -- in the years before the war -- of a total German production of about 195,000,000 metric tons, more than 62,000,000 metric tons came from mines in the Central Industrial Region. It has been estimated that by 1942 German brown coal production had risen to about 260,000,000 metric tons, and it may be assumed that the brown coal mines of the Central Industrial Region are being exploited with vigor.

3. Location. The brown coal resources of the Central Industrial Region are grouped in two major deposits. One of these is the western and northwestern portion of the Thüringisch-Sächsischer Braunkohlenbezirk, the remainder of which, centering around Leipzig, lies outside the region (Map No. A3047). This field extends north of Bitterfeld and Köthen, west to Halle and Merseburg, and south to Zeitz, Meuselwitz, and Altenburg. Halle is the most important mining center, not only of this field, but in the Central Industrial Region (See the four accompanying maps -- The Halle Brown Coal District, The Meuselwitz-Rositz Brown Coal District, The Bitterfeld Brown Coal District, and The Magdeburg Brown Coal District).

The other large brown coal field is the Braunschweig-Magdeburger Braunkohlenbezirk (Map No. A3047). This extends in a northwest-southeast direction from Helmstedt to Stassfurt, with a detached bed just northwest of Aschersleben. The mines near Helmstedt are next in importance to those of Halle.

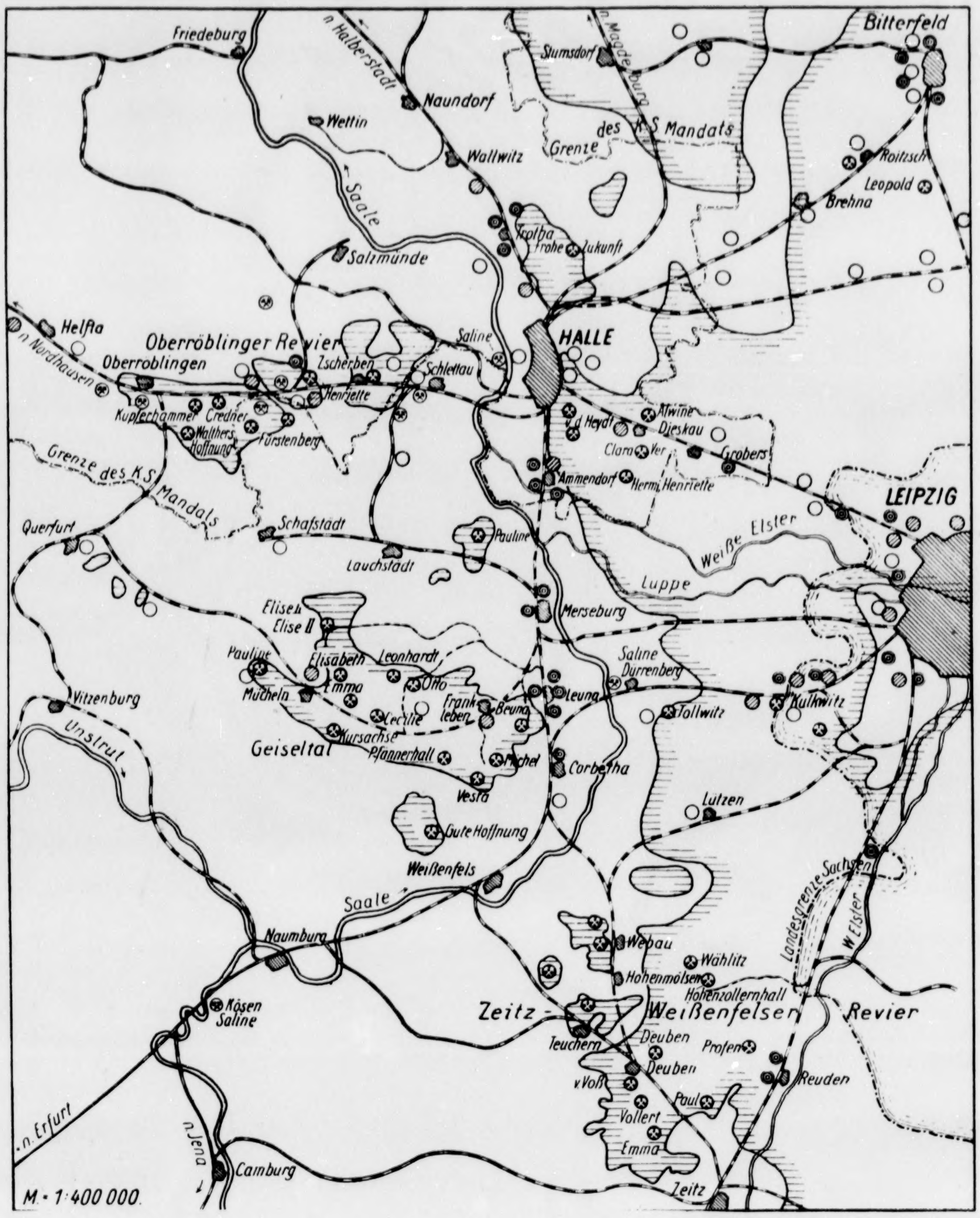
4. Mines. The brown coal mines include both underground and surface workings. The underground mines are from sixty to a hundred meters deep with seams from two to twelve meters in thickness. Open-pit mines, particularly, have been highly mechanized, with special machinery both for the re-

moval of earth above the deposit, and for the mining of the coal. Briquetting works are usually at the site of the mine itself, and frequently other by-products, such as coke, semi-coke, "dried coal", tar, and a distillate known as "Leichtöl" (light oil) are produced, though not in large quantities. A number of the mining concerns also generate power for transmission purposes, and several engage in the manufacture of bricks, inasmuch as good brick clay is frequently found in the same geologic formations as brown coal.

5. Employment. As of 1936, out of a total of 53,000 persons employed in the mining of brown coal, Provinz Sachsen and Thüringen accounted for more than 16,000, while the manufacture of brown coal briquettes in these provinces occupied 11,000 persons out of 32,000 in all Germany.

6. Uses. The industrial development of the Central Industrial Region has to a large degree been dependent upon the supplies of brown coal which are available in the area. The fuel is usable in a number of classes of industry, of which the most important, as estimated in 1942, for all of Germany was the generation of electric power, accounting for 32.5 percent of brown coal consumption. Household requirements of first rank in peace time, are still important, however, using somewhat more than 27 percent of German brown coal. Other industries using considerable amounts of brown coal for fuel are mining, 8 percent; chemical industry, 6.7 percent; and metallurgical, 3.4 percent. Moreover, about 10 percent of German brown coal production in 1942 was used as a raw material in the manufacture of synthetic oil, either by low-temperature carbonization, the Fischer-Tropsch process, or the Bergius process.

Long-distance haulage is not profitable, because of the high moisture content of the coal and its comparatively low heating qualities. For this reason, the tendency has been


Friedeburg
n. Halberstadt
n. Magdeburg
Stumsdorf
Bitterfeld
Wettin
Naundorf
Wallwitz
Grenze des K.S. Mandats
Roitzsch
Leopold
Brehna
Saale
Trotha
Frohe
Zukunft
Salzmünde
Helfta
n. Nordhausen
Oberröblinger Revier
Oberroblingen
Zscherben
Schlettau
Saline
HALLE
Henriette
Kupferhammer
Credner
Walthers Hoffnung
Fürstenberg
v.d. Heydt
Alwine
Dieskau
Clara
Ver
Grobers
Ammendorf
Herm. Henriette
Grenze des K.S. Mandats
Querfurt
Schafstadt
Pauline
Lauchstadt
LEIPZIG
Weiße Elster
Luppe
Elise I
Elise II
Merseburg
Pauline
Elisabeth
Leonhardt
Saline Dürrenberg
Mücheln
Emma
Otto
Leuna
Vitzenburg
Cecilie
Frankleben
Beuna
Tollwitz
Kulkwitz
Unstrut
Geiseltal
Kursachse
Pfännerhall
Michel
Corbetha
Vesta
Lützen
Gute Hoffnung
Weißenfels
Saale
Landesgrenze Sachsen
W. Elster
Naumburg
Webau
Wählitz
Hohenmölsen
Hohenzollernhall
Kösen Saline
Zeitz
Weißenfelser Revier
Teuchern
Deuben
Deuben
Profen
Reuden
v. Voß
Paul
n. Erfurt
Vollert
n. Jena
Emma
Camburg
Zeitz
M. 1:400 000.

THE HALLE BROWN COAL DISTRICT

▤ Brown coal areas

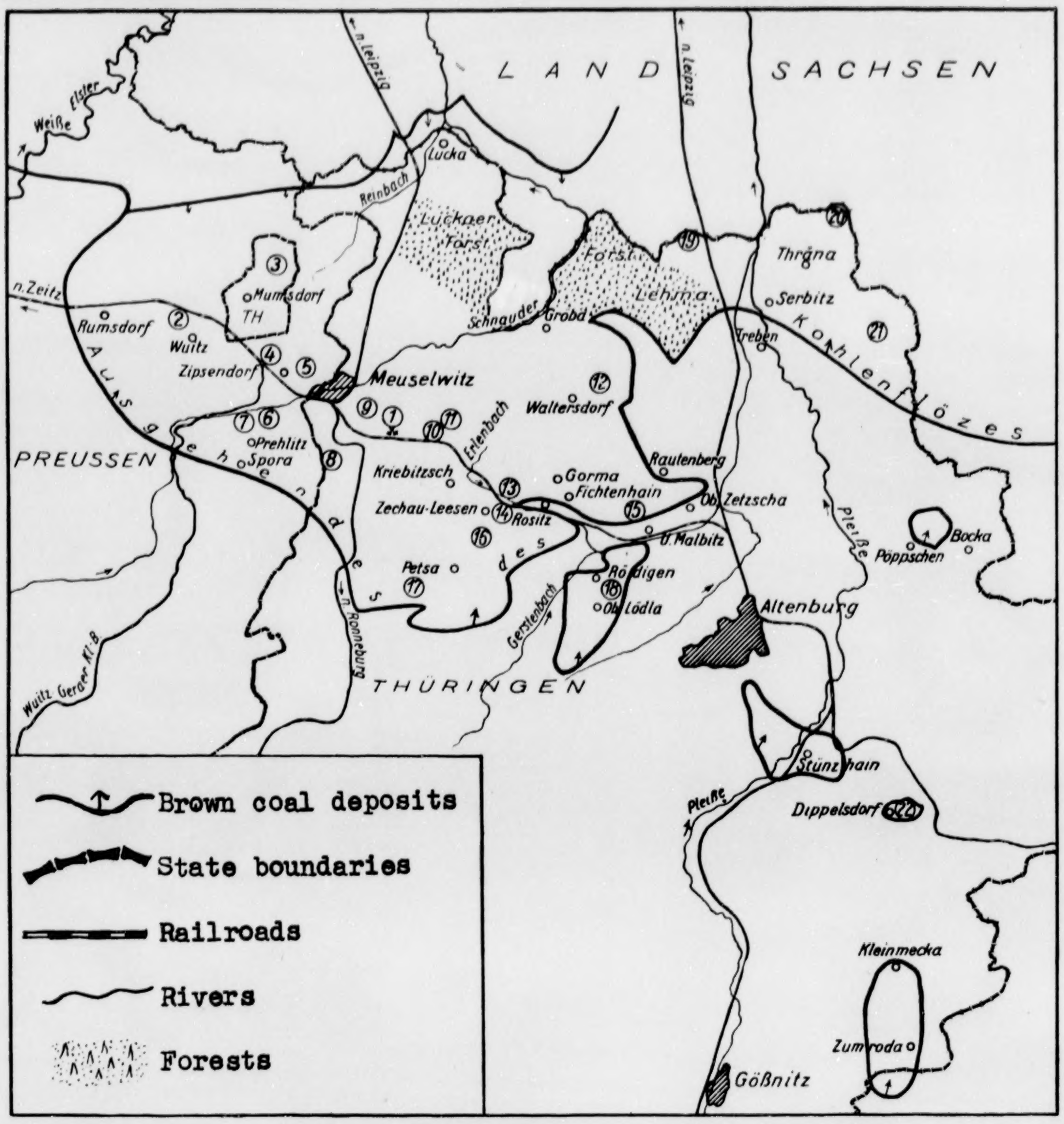
⊗ Brown coal mines

○ Sugar and malt factories

⚒ Chemical plants

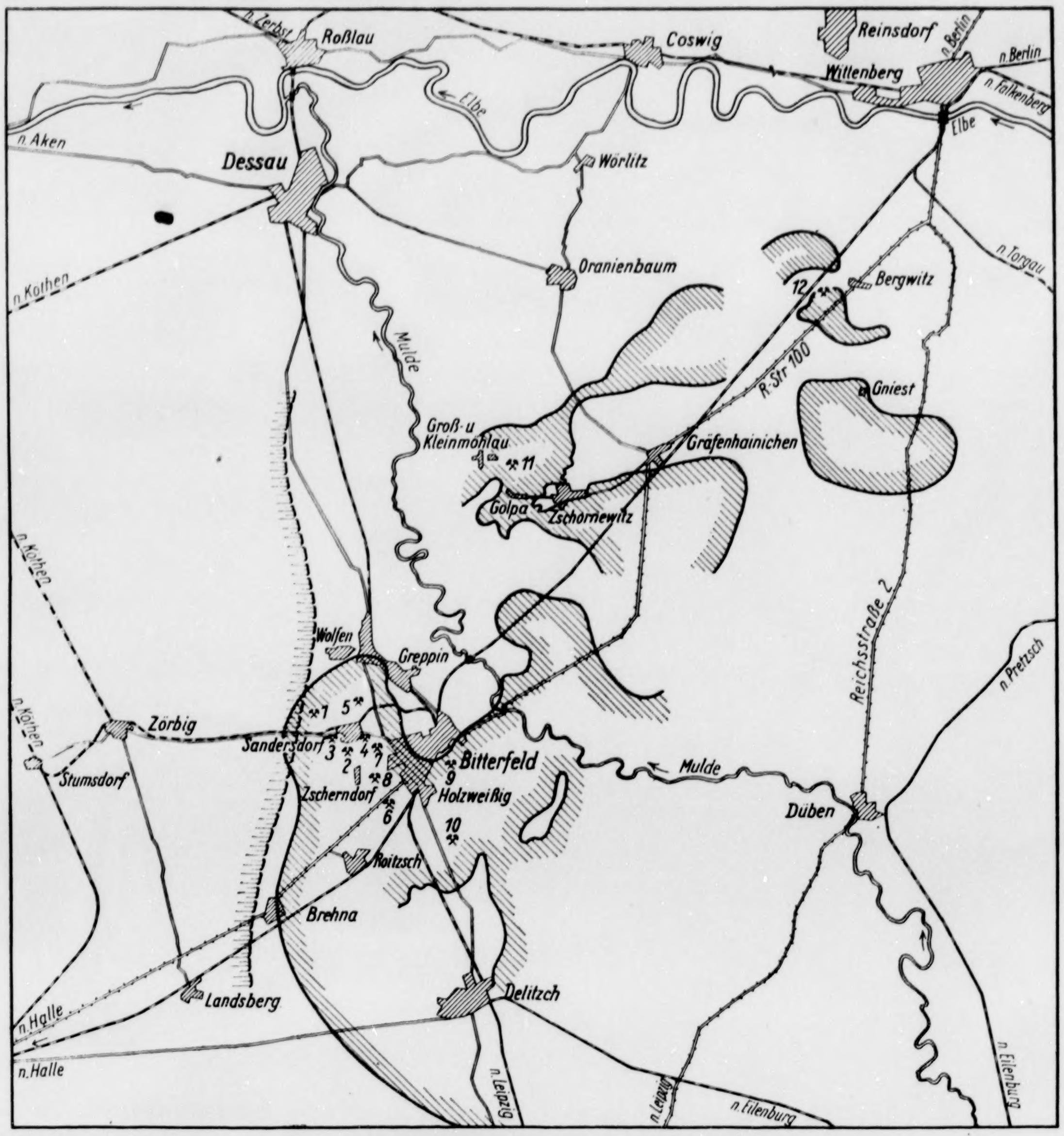
◎ Potassium and salt mines

▨ Wood and paper factories


LAND SACHSEN
n. Leipzig
n. Leipzig
Weiße Elster
Lucka
Reinbach
Luckaer Forst
Forst Leina
Thräna
Serbitz
Treben
Kohlenflözes
n. Zeitz
Rumsdorf
Mumsdorf
TH
Wuitz
Zipsendorf
Meuselwitz
Schnauder
Grobd
Waltersdorf
Erlenbach
Ausgehendes des
PREUSSEN
Prehlitz
Spora
Kriebitzsch
Zechau-Leesen
Rositz
Gorma
Fichtenhain
Rautenberg
Ob. Zetzscha
U. Malbitz
Pleiße
Bocka
Pöppschen
Petsa
Rödigen
Ob. Lödla
Gerstenbach
Altenburg
n. Ronneburg
THÜRINGEN
Wuitz Gerer Kl. B
Stünzhain
Pleiße
Dippelsdorf
Kleinmecka
Zumroda
Gößnitz
Brown coal deposits
State boundaries
Railroads
Rivers
Forests

1. Alte Pillingsche Grube v. 1671
2. Grube Leonhard I
3. „ Phönix
4. Schädegrube
5. Grube Fürst Bismarck
6. „ Vereinsglück II
7. „ Leonhard II
8. Kiefernschacht
9. Heinrichschacht
10. Idaschacht
11. Bruderzeche
12. Tagebau Waltersdorf
13. Grube 113
14. „ 145
15. Grube Altenburger Kohlenwerke
16. „ Gertrud
17. Tagebau Petsa
18. Grube Herzog Ernst
19. Brikettfabrik Herzogin Adelheid
20. Grube Kraft I
21. „ Augusta
22. „ Winterfeld

THE MEUSELWITZ - ROSITZ BROWN COAL DISTRICT


n. Zerbst
Roßlau
Coswig
Reinsdorf
n. Berlin
n. Berlin
Wittenberg
n. Falkenberg
Elbe
Elbe
n. Aken
Dessau
Wörlitz
Oranienbaum
n. Torgau
n. Köthen
12
Bergwitz
Mulde
R. Str 100
Gniest
Groß- u Kleinmöhlau
11
Gräfenhainichen
Golpa
Zschornewitz
n. Köthen
Reichsstraße 2
Wolfen
Greppin
n. Pretzsch
1
5
Zörbig
n. Köthen
Sandersdorf
3
2
4
7
Bitterfeld
Mulde
8
9
Stumsdorf
Zscherndorf
Holzweißig
6
10
Düben
Roitzsch
Brehna
Delitzsch
n. Halle
Landsberg
n. Halle
n. Leipzig
n. Leipzig
n. Eilenburg
n. Eilenburg

THE BITTERFELD BROWN COAL DISTRICT

1. Grube Stakendorf
2. „ Vergißmeinnicht
3. „ Erich
4. „ Richard

} Bitterfelder Louisengrube

5. Grube Hermine
6. „ Theodor
7. Deutsche Grube
8. Grube Auguste
9. Grube Leopold
10. „ Ludwig
11. „ Golpa
12. Bergwitzer Braunkohlenwerke

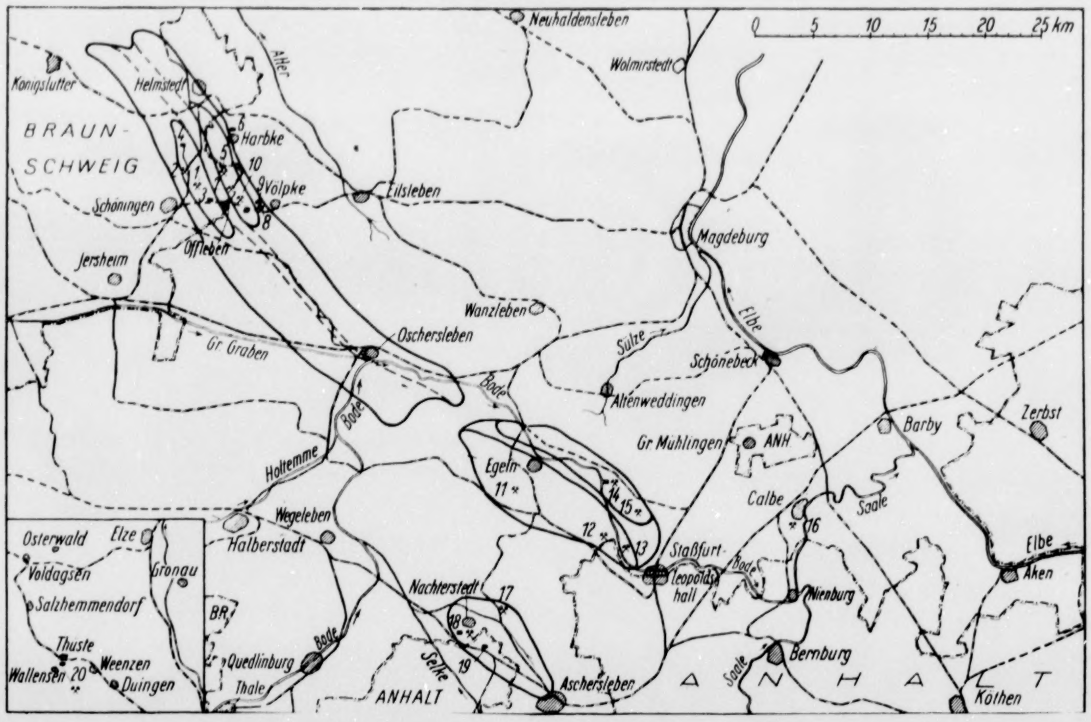
▨ Older brown coal area

▨ Younger brown coal areas

▬ Railroads

〰 Rivers

⚒ Mines in operation


Neuhaldensleben
0 5 10 15 20 25 km
Wolmirstedt
Aller
Konigslutter
Helmstedt
BRAUN-
SCHWEIG
6
Harbke
2
5
7
10
1
9 Völpke
3
4
8
Schöningen
Eilsleben
Offleben
Jersheim
Magdeburg
Wanzleben
Elbe
Gr. Graben
Oschersleben
Sülze
Schönebeck
Bode
Altenweddingen
Bode
Zerbst
Barby
Gr. Mühlingen
ANH
Egeln
Holtemme
11
14
15
Calbe
Saale
16
Wegeleben
12
13
Halberstadt
Staßfurt-
Leopoldshall
Bode
Elbe
Aken
Osterwald
Elze
Voldagsen
Gronau
Salzhemmendorf
BR
Nachterstedt
17
Nienburg
18
Thuste
Wallensen
20
Weenzen
Duingen
Quedlinburg
Bode
Thale
Selke
19
ANHALT
Aschersleben
Saale
Bernburg
A N H A L T
Köthen

THE MAGDEBURG BROWN COAL DISTRICT: 1929-1935

1. Tagebau Treue III	Braunschweigische Kohlen-Bergwerke
2. Tagebau Treue V (bis 1930) ..	
3. Brikettfabrik Treue III/IV und Kraftwerk Treue	
4. Brikettfabrik Treue III......	
5. Tagebau Wulfersdorf	
6. Großkraftwerk Harbke und Entteerungsanlage	
7. Tagebau Anna (bis 1934)	
8. Brikettfabrik Fürst Bismarck .	
9. Montanwachsfabrik Völpke	
10. Grube Caroline (Tagebau und Tiefbau) mit Brikettfabrik (bis 1933)	
11. Tiefbaugrube Cäsar mit Kraftwerk bei Egeln (Gew. Archibald)	
12. Tagebau Jakobsgrube (bis 1931)	
13. Tiefbau Fiskus Löderburg	
14. Tiefbaugrube Johanne Henriette mit Brikettfabrik	Gewerkschaft Johanne Henriette
15. Tiefbaugrube Marie (seit 1934 zu Gew. Johanne Henriette) ..	
16. Tiefbaugrube Wolf	
17. Tagebau Jakob (Gew. Georg) (seit 1932 nicht in Förderung)	
18. Tagebau Concordia mit Brikettfabrik und Schwelerei	Gewerkschaft Concordia
19. Brikettfabrik Clara	
20. Tagebau Humboldt mit Brikettfabrik	

State boundaries   Railroads   Rivers

⚒ Mines in operation   ▬ Briquette plants   Brown coal areas to establish industries near the sources of brown coal. The adequacy of this type of fuel for use in electrical generating plants has furthered its transformation into electric power for long-distance transmission, while the manufacture of brown coal into briquettes has extended its transportation radius.

The use of brown coal in the form of briquettes is very popular in Germany. Although it takes nearly three tons of brown coal to produce one ton of briquettes, lower moisture content and reduced bulk make them very practicable for household and industrial purposes, and before the war, about 65 percent of German brown coal , was converted into briquettes. It is in this form that most brown coal in Germany is transported, because of economies in space and weight. In 1937, 8,800,000 tons of brown coal briquettes and 3,740,000 tons of brown coal were shipped out of the Central Industrial Region, while 3,800,000 tons of briquettes and 2,700,000 of coal were shipped into the region. The considerable excess of exports over imports would indicate that the region is generally self-sufficient in its supplies of brown coal, and probably most of the imports are accounted for by the fact that one of the large coal fields of the Central Industrial Region extends considerably beyond the limits of the area.

In general, it has been German practice to use brown coal wherever possible and feasible, and to reserve bituminous coal for other purposes, such as the smelting of iron ore, for which brown coal is unsuitable. Considerable quantities of bituminous coal, are brought into the region, to supplement brown coal. In 1937 nearly 6,500,000 tons of bituminous coal and 3,000,000 tons of coke were imported into the Central Industrial Region, while exports of the respective fuels were 180,000 tons and 475,000 tons.

7. Management. Most German coal mining companies are grouped into syndicates for the purposes of centralized sales operations. There are three brown coal syndicates in Germany, of which the Mitteldeutsches Braunkohlen-Syndikat, with headquarters at Leipzig, is the most prominent in the Central Industrial Region, having as members all but four companies within the area. The remaining four are members of the Ostelbisches Braunkohlen-Syndikat. Mine labor is now controlled by the Deutsche Arbeitsfront, which has replaced the formerly very strong miners' organizations.

Table 19 lists the principal mines in the Central Industrial Region, their total production of brown coal, the amounts transformed into briquettes or other by-products.

C. Metallic Ores

1. Iron Ore

a. Evaluation. A deposit of over 1,000,000,000 MT, of low-grade iron ore, located near Salzgitter and Peine (between Hannover and Braunschweig) and extending south into the northern foothills of the Harz, (See Map A3047) forms the basis for large-scale iron ore mining in the Central Industrial Region. There are, in addition, a number of smaller deposits primarily in the Harz, many of which, having lost their earlier importance, are nevertheless still exploited.

Germany, a heavy importer of iron ore, became even more dependent upon imports during the years following the loss of the Lorraine deposits to France. By 1937 the Nazi government, in anticipation of war, initiated a systematic effort to secure a higher degree of self-sufficiency through the exploitation of ores of such low grade that mining would normally not be considered profitable. After a detailed geological survey of the Salzgitter region, whose deposits were found to be of a magnitude hitherto unknown, the Hermann Göring works, was founded as a special corporation

Table 19. IMPORTANT BROWN COAL MINES AND BRIQUETTING WORKS IN THE CENTRAL INDUSTRIAL REGION

Firm or owner	Location	Production (figs in m.t.)	Equipment and facilities	Remarks
Mitteldeutsches Braunkohlen-Syndikat				
Bergwitzer Braunkohlenwerke	Bergwitz s.w. Wittenberg	Brown coal: 2,040,000 Briquettes: 242,000*	Surface mine with mechanized equipment. Briquette plant, with 11 presses.	667 employees.
Bitterfelder LouisenGrube	Bitterfeld	Brown coal: 577,000 Briquettes: 29,000 Also manufactures bricks: c.f. "Building Earths".	2 surface mines, with mechanized equipment and own power station.	267 employees.
Bleichert'sche Braunkohlenwerke	Neukirchen	Brown coal: 775,000 Briquettes: 264,000	Surface mine. 2 briquette plants with 10 presses. Power plant for works.	424 employees. Also generates electric power. 3,889,776 kwh. in 1937-38.
Gew. der Braunkohlengrube "Concordia"	Nachterstedt-Concordia	Brown coal: 2,455,000 Briquettes: 713,000 Semi-coke : 98,818 "Dried coal": 4,134	Surface mine. Has own power station.	1185 employees.
Braunkohlen Abbauverein "zum Fortschritt"	Meuselwitz	Brown coal: 351,000 Briquettes: 172,000	1 shaft; 1 briquette plant with 9 presses.	351 employees
Braunkohlenwerke Bruckdorf	Dieskau s.e. Halle	Brown coal: 623,000 Briquettes: 125,000 Semi-coke : 35,364 Coal dust : 10,576 Tar and "light oil" : 11,223	Surface mining Briquette plant, with 8 presses, annual capacity 150,000 m.t.	751 employees Also generates electric power: 10,463,500 kwh in 1937.

*Brown coal production figures are over-all and include the amount of coal made into briquettes, coke, or other products.

Table 19. Important Brown Coal Mines and Briquetting Works in the Central Industrial Region (continued)

Firm or owner	Location	Production (figs in m.t.)	Equipment and facilities	Remarks
Braunschweigische Kohlenbergwerke AG	Helmstedt	Brown coal: 5,759,000 Briquettes: 1,760,000 Coke : 483,975 Tar : 93,233 Also manufactures bricks, c.f. "Building Earths"	Surface mining. Has own power plant.	3944 employees.
Deutsche Erdöl AG †	Altenburg	Brown coal: 182,000 Briquettes: 154,000		241 employees.
	Niederbeuna	Brown coal: 951,000 Briquettes: 332,000		566 employees.
	Prehlitz	Brown coal: 634,000 Briquettes: 241,000		386 employees.
	Rositz	Brown coal: 418,000 Briquettes: 349,000		547 employees.
Deutsche Grube AG	Halle	Brown coal: 11,224,000 Briquettes: 275,000 Also manufactures bricks: c.f. "Building Earths".	Surface mines. Power stations.	2195 employees. Also generates electric power: 31,800,000 kwh in 1937.

† The mines of this concern are partially in the area and partially outside it. It appears that the provision of brown coal for briquetting is interchangeable among some of these mines, i.e., that certain briquetting works produce more briquets than would be possible from their own production and probably use coal from other mines as well.

Table 19. Important Brown Coal Mines and Briquetting Works in the Central Industrial Region (continued)

Firm or owner	Location	Production (figs. in m.t.)	Equipment and facilities	Remarks
Deutsche Solvay-Werke	Osternienburg	Brown coal: 558,000 "Dried coal": 74,400	Underground mine.	434 employees. Also generates electric power: 669,000 kwh in 1937.
	Micheln	Briquettes: 13,000		40 employees.
Johanne Henriette Gew.	Unseburg	Brown coal: 358,000 Briquettes: 59,000	3 shafts. Briquette plant with 4 presses.	363 employees. Also generates electric power: 2,756,000 kwh in 1937.
Kohlenveredelung u. Schwelwerke AG	Gölzau	Brown coal: 504,000 Coke : 123,638 "Light oil": 2,586	Underground mine. 1 shaft	1128 employees. Also generates electric power: 15,000,000 kwh in 1937.
Braunkohlenwerke Leonard	Zipsendorf nr. Meuselwitz	Brown coal: 1,985,000 Briquettes: 634,000	2 pits; 1 surface mine - daily output 7,500 m.t. 4 briquette plants with 29 presses - daily output 2700 m.t. Has own power system.	794 employees. Also generates electric power: 15,961,000 kwh in 1937.
Grube Leopold AG	Bitterfeld	Brown coal: 1,839,000 Briquettes: 339,000	1 surface mine. Briquette plant, with 16 presses.	925 employees.

Table 19. Important Brown Coal Mines and Briquetting Works in the Central Industrial Region (continued)

Firm or owner	Location	Production (figs. in m.t.)	Equipment and facilities	Remarks
Grube Leopold AG	Edderitz s.w. Köthen	Brown coal: 191,000 Briquettes: 35,000 Coke : 30,000 "Light oil": 1,754 Tar : 7,000	2 shafts	556 employees.
Michel-Werke: Michel Vesta	Gross Kayna s. Merseburg	Brown coal: 3,067,000 Briquettes: 791,000	1 surface mine. Briquet "Michel" plant, with 19 presses; electric power plant Briquette "Vesta" plant, with 15 presses; electric power plant.	1298 employees. Also generates electric power: 27,700,000 kwh in 1937
Michel-Werke: Leonhardt	Neumark (Merseburg)	Brown coal: 914,000 Briquettes: 283,000	1 surface mine. 2 briquette plants, with 16 presses, annual capacity 483,000 m.t. electric power plant.	485 employees. Also generates electric power: 10,400,000 kwh in 1937
Michel-Werke: Gute Hoffnung	Rossbach (Weissenfels)	Brown coal: 752,000 Briquettes: 197,000	1 surface mine. 1 briquette plant, with 8 presses, annual capacity 268,000 m.t. electric power plant.	500 employees. Also generates electric power: 6,000,000 kwh in 1937.

Table 19. Important Brown Coal Mines and Briquetting Works in the Central Industrial Region (continued)

Firm or owner	Location	Production (figs. in m.t.)	Equipment and facilities	Remarks
"Phönix" AG	Mumsdorf w. Meuselwitz	Brown coal: 1,510,000 Briquettes: 550,000	1 surface mine with electric excavators; 1 briquette plant with 20 presses.	748 employees. Also generates electric power: 18,306,700 kwh in 1937.
Preussische Bergwerks u. Hütten. AG	Tollwitz	Brown coal: 12,000		
Riebeck'sche Montanwerke	Oberröblingen e. Halle	Brown coal: 2,154,000 Briquettes: 450,000 Semi-coke: 69,325 "Dried coal": 6,690 Also makes bricks, c.f. Building Earths.		2468 employees. Also generates electric power: 21,896,300 kwh in 1937-38.
	Ammendorf	Brown coal: 2,956,000 Briquettes: 151,000 Also makes bricks, c.f. Building Earths.		1024 employees.
	Deuben n.w. Zeitz	Brown coal: 6,289,000 Briquettes: 2,013,000 Semi-coke : 551,000 Also makes bricks.		3940 employees.
Bruderzeche H. Solf AG	Kriebitzsch s.w. Meuselwitz	Brown coal: 217,000	3 underground shafts. Has own power plant, chain railways.	177 employees.

Table 19. Important Brown Coal Mines and Briquetting Works in the Central Industrial Region (continued)

Firm or owner	Location	Production (figs, in m.t.)	Equipment and facilities	Remarks
Werschen-Weissenfels er Braunkohlen AG	Zeitz	Brown coal: 1,189,000 Briquettes: 258,000		634 employees. Also generates electric power: 13,709,100 kwh in 1937.
	Zeitz	Brown coal: 1,778,000 Briquettes: 613,000		926 employees. Also generates electric power: 36,366,345 kwh in 1937.
	Lützkendorf	Brown coal: 59,000 Briquettes: 26,000	2 briquette plants with 19 presses.	151 employees. Also generates electric power: 4,293,190 kwh in 1937.
Grube Winterfeld	Garbus s.e. Altenburg	Brown coal: 11,000 Briquettes: 5,000	1 shaft	36 employees.
Gew. "Wolf"	Kalbe	Brown coal: 202,000	Underground mine	161 employees.
Ostelbisches Braunkohlen-Syndikat				28,227,500 kwh.
Anhaltische Kohlenwerke AG	Mücheln s.w. Merseburg	Brown coal: 2,330,000 Briquettes: 534,000	Surface mine. 3 Briquette plants, with 27 presses.	761 employees. Also generates electric power.

Table 19. Important Brown Coal Mines and Briquetting Works in the Central Industrial Region (continued)

Firm or owner	Location	Production (in m.t.)	Equipment and facilities	Remarks
	Rositz	Brown coal: 1,614,000 Briquettes: 599,000	Surface mine, 2 underground pits, 3 briquette plants with 28 presses.	Also generates electric power: 20,731,738 kwh in 1937. 1059 employees.
Elektrowerke AG	Golpa nr. Zschornewitz	Brown coal: 3,780,000	3 surface mines	1335 employees.
Hallesche Pfännerschaft	Halle	Brown coal: 78,000 Semi-coke : 10,653 Tar : 2,193 "Light oil": 191	Salt works connected with mine	135 employees.

to consolidate existing mines and to develop new shafts and pits within the area. The immediate aim was to mine 10,000,000 MT of ore annually, an amount to be increased later to 21,000,000 MT. Under such artificial stimulus, the iron ore output of central Germany increased by over a million tons annually in the two years preceding the war and by 1939 supplied more than one-fifth of the iron ore mined in Germany. At present the amount mined is believed not to be substantially greater than that of the last known pre-war years, and the older plans for continued expansion seem to have been shelved with re-acquisition of the Lorraine deposits.

The development of the Salzgitter mines has transformed a formerly unimportant district into one of the most important German iron ore mining areas. Although only a relatively small percentage of the total number of workers in the region are employed by the iron ore mines, these mines form the basis for the older smelters at Peine and the new iron and steel works of the Hermann Göring plant in the Braunschweig area. New canal, road, and railroad facilities; strip mining; and new settlements have changed its outward appearance, while the recent cession of the Saltzgitter district to Braunschweig by Preussen has changed the political geography.

Almost all the iron ore mines in central Germany are owned by iron and steel firms. The Hermann Göring works with its large interests in this region will present a special problem after the war, since it was created for political purposes, is controlled by Nazi political interests, and is heavily subsidized by the government. It is a question whether or not these mines can be operated on a competitive basis in a peacetime economy.

b. Functional Aspects. Besides the two main clusters of mines near Peine and Salzgitter, iron ore is mined in various sections of the Harz, where many mines were opened up before the war. Iron ore output in central Germany rose from 2,548,000 MT of dry ore in 1937 to 1,873,000 MT in the first half of 1939, of which the Harz area contributed only 132,000 MT. Most of the ore mined is limonite, containing many impurities. Iron content is also low, that of Peine ore being 26.9 percent and of Salzgitter 27.3 percent in 1937.

Most mines are underground, but a large-scale strip mining project has been reported for the Hermann Göring works. Most ore is transported by railroad to the smelters in the region or to the Mittelland Canal for shipment to the Ruhr.

The number of workers employed in 1937 (exclusive of the Hermann Göring mines) was a little ower 3,000. It is not likely that the total ever exceeded 10,000. Many workers are skilled, while unskilled foreign labor is probably being used since the outbreak of the war.

c. Major Iron Ore Mines. The major iron ore mines, their ownership, location, production and capacity, and equipment and facilities are shown in table 20.

2. Copper Ores

a. Evaluation of Copper Ore Mining. Copper ore mining is one of central Germany's major contributions to Germany wartime economy. One of the oldest and the most important copper ore mines in Germany proper is located in the Central German Region and is operated by the Mansfeldscher Kupferschieferbergbau AG in Mansfeld near Eisleben. Even though Germany has cut (by substitution of other metals) her wartime copper requirements to about 200,000 tons per annum, the domestic mines can supply only 10 to 20 percent of her present consumption. Besides the Mansfeld field there is another major copper ore deposit in the northern portion of the Harz Mountains near Goslar, much smaller than the Mansfeld deposit.

Table 20. MAJOR IRON ORE MINES

Firm	Location	Production and capacity.	Equipment and facilities	Remarks
Gewerkschaft Tilkerode II	nr. Tilkerode, N. of Wippra, Lower Harz	Hematite	Dressing plant planned; mining underground	22 workers; work interrupted before war.
Ilseder Hütte Bülten-Adenstedt mine	nr. Peine (W. of Braunsckweig)	996,500 MT of manganese containing limonite in 1937.	underground mining; 2 pits and 2 new pits being opened.	939 workers in 1937.
Georg Friedrich, Sprung ins Freie, Anna, and Hoffnung mines	nr. Dörnten and Liebenburg between Salzgitter and Goslar	308,414 MT of limonite in 1937	Open-pit mining	137 workers in 1937.
Sophienglück-Mathilde mine	nr. Broistedt, between Braunschweig and Hildesheim	869,783 MT of limonite in 1937	underground and open-pit mining	831 workers in 1937.
Krupp AG & Hoesch AG Sielaberg mine	Schandelah, Salzgitter area	45,225 MT of limonite in 1937		52 workers end of 1937. Exploitation began May 1937.
Hansa mine	nr. Harlingerode (Harz)	98,928 MT of limonite in 1937	underground mining	248 workers in 1937
Braunesumpf mine	Hüttenrode (Harz)	123,914 MT of various iron ores	underground mining	449 workers at end of 1937
Reichswerke AG für Erzbergbau und Eisenhütten "Hermann Göring"	Salzgitter	probably over 1 million before the war	underground and strip mining	

Table 20. Major Iron Ore Mines (continued)

Firm	Location	Production and Capacity	Equipment and facilities	Remarks
various mines including Finkenkuhle, Hannoversche Treue, Haverlahwiese, and Wortlahschaft.				
Vereinigte Stahlwerke (Rohstoffbetriebe) Barbecke mine	Barbecke, nr. Woltwiesche, between Braunschweig and Hildesheim	45,000 MT of Limonite in 1937	underground mining	110 workers in 1937
Ida, and Morgenstern mines	S. of and nr. Salzgittor.	45, 846 MT of iron ore in Ida mine in 1937	Connected by grid with Helmstedt power station; rr. connection with Othfresen station. Underground mining.	223 workers end of 1937. Was enlarged. Fortuna mine which belonged to this group has been ceded to Hermann Göring Works.

The Nazis have systematically sought an increase in copper ore extraction in order to meet their wartime requirements. They did not restrict their efforts to central Germany alone, but also exploited copper mines in Hessen and Silesien. Within the Central Industrial Region the Nazis succeeded in increasing the output of copper ore, but owing to the lower average content of copper, the production of copper metal did not increase correspondingly. Mansfeldscher Kupferschieferbergbau AG explored other deposits in central Germany, but no details of production are available and the volume of production is believed to be low. It is the Mansfeld mine which supports the copper metallurgical industry of the Central Industrial Region.

b. Special Problems of Ownership and Management. The Mansfeld mine was formerly owned and operated by Mansfeld AG, but because of its unprofitableness and dependence on government subsidies, the private company was unwilling to continue operation. The mine was therefore separated in 1934 from the private metal smelting and fabricating company and taken over by a newly formed concern, Mansfeldscher Kupferschieferbergbau AG, an exclusively mining organization, controlled by the government. It is operated, however, by the privately owned Mansfeld AG in the capacity of trustee. The high cost the Nazis are willing to pay in subsidizing the private company reveals Germany's need for copper at almost any price. In 1933, subsidies amounted to over ten million marks; in 1934, over fourteen million; in 1935, over thirteen million. In more recent years subsidies have probably increased still further. Considering these figures, the Mansfeld mine does not promise to be a profitable post-war industry in a non-military economy.

c. Functional Aspects. Because of Germany's need for copper, we may be sure that wherever there are copper ore deposits in any appreciable quantity, there are also mines. The Mansfeld field has been worked since the year 1199 while Unterharzer Berg-und Hüttenwerke GmbH in Oker which operates the Erzbergwerk Rammelsberg near Goslar and which also produces zinc and lead ores has been worked since the year 972. The Rammelsberg mine probably produces no more than 4,000 tons of copper content per annum. Certain ores here are supposed to have copper content as high as 16 percent, but the average for the northern Harz fields is much lower. The Mansfeld mine is deep, 800 meters below the surface, and the low-grade copper shale mined is difficult to concentrate, having only 2 to 3 percent copper content.

The following table gives the approximate production at the Mansfeld mine:

Year	Ore (metric tons)	Copper Content of Ore Output
1933	1,000,000	24,900
1934	1,000,000	22,000
1935	1,100,000	23,500
1936	1,100,000	24,000
1937	1,275,000	24,000

Current production is probably about equal to that of 1937, with the copper content of the ore output fluctuating around 24,000 tons.

The Mansfeld Company owns 105 kilometers of railroad connecting Eisleben, Mansfeld, and Hettstedt, thus making possible transportation from the Mansfeld mine to the smelters at Hettstedt. Three electric power stations in Eisleben, Helbra, and Burgörner supply the various Mansfeld works with light and power. In 1936 the Mansfeld mine employed 9,000 workers, while the Rammelsberg mine employed 550.

3. Lead and Zinc. Although lead and zinc are mined together the German supply and demand for these two metals differs radically. Zinc is the chief domestic substitute for scarcer metals such as copper. Since the outbreak of the war, Axis Europe has become practically self-sufficient in zinc. Through conquest Germany has gained control of more than 70 percent of the European zinc supply. In addition, zinc mining in Germany has increased and the use of existing supplies is controlled by the government. The lead supply of Germany is less satisfactory. Before the war Germany relied upon ores imported from Yugoslavia, Australia, and Southwest Africa for more than half of its requirements. Although Germany still receives ore from Yugoslavia and has increased its own production, these do not compensate for the loss of overseas imports, and the Nazis have placed strict regulations on the use of lead.

The Harz Mountains include a large proportion of the German lead and zinc reserves. The two metals occur in the same ore and are mined together. New shafts have been sunk and new methods have been developed for extracting the metal from the ore. On the basis of metal content, the Harz area produced, in 1937, about 40 percent of German lead and 26 percent of the zinc. The mines, however, never proved profitable and continued operation only through government subsidy. In some years the subsidy amounted to as much as 90 percent of the nominal capital of the mining companies, of which there are two in the Central Industrial Region.

In the Harz area, zinc mining has proved far more practicable than lead mining and it is believed that the recent increase in zinc production can be maintained for some time. Although no data are available on current production, the following figures indicate the pre-war trend in lead and zinc mining in the Harz area. Production has undoubtedly increased considerably since 1937.(Table 21).

Year	Ore Mined	Lead content	Zinc content
1935	238,212 MT	20,866 MT	25,503 MT
1936	280,306 MT	26,447 MT	34,714 MT
1937	339,530 MT	32,161 MT	43,452 MT

4. Other Ores. Although the Harz Mountains have been known since the Middle Ages for their variety of minerals containing rare metals, only iron, copper, lead, and zinc ores have been mined in the Harz or in the remainder of the Central Industrial Region in recent years. Some ores, especially copper ores, contain limited amounts of other metals. The Mansfeld Company extracted 132,825 kg. of silver from copper ores in 1937. The same ores also contained smaller amounts of nickel, selemium, vanadium, and other metals. Whether Germany's shortage of many rare metals has caused renewed exploitation of the ore deposits in this area, cannot be determined with certainty. Any such activities, however, will probably become unprofitable with the end of the present war economy.

D. Non-metallic Minerals

1. Limestone, Clay and Sand.

a. Importance. The Central Industrial Region employs approximately 12-1/2 percent of the total personnel of the Stone and Earth Industries in the German Reich. Since the production of these industries is sixth in importance to the nation's economy, the contribution made by the region is noteworthy.

b. Location and Use of Raw Materials. Limestone, clay, and sand, the major raw materials used in the Stone and Earth Industries are plentiful throughout the Central Industrial Region.

Lime and limestone used for many purposes by the building industry is concentrated north of Erfurt in the Thüringian shell-limestone district. Not only is lime and

Table 21. LEAD AND ZINC MINES

Company	Location	Production	Remarks
Unterharzer Berg- und Hüttenwerke GmbH (Subsidiary of Preussische Bergwerks- und Hütten AG) Rammelsberg mine	South of Goslar (Harz) 1937:196	1937:196,030 tons of ore (zinc, lead, copper)	Administration in Oker. Open cut and underground mining: two shifts. Ore reserves: 960,000 tons zinc (metal content) 380,000 tons lead (metal content) Planned capacity: 250,000 tons ore p.a. Grade: Average milling ore, 18 to 25% zinc, 9 to 12% lead and 3 to 10% copper. 871 workers in 1937. Smelts own ores. Concentrates shipped to plant at Oker by narrow-gauge railroad. Power from German grid.
Preussische Bergwerks- und Hütten AG: Hilfe Gottes and Bergwohlfahrt mines	Bad Grund (Harz)	1937: 134,000 tons of ore (zinc, lead, copper)	Each mine has a hydro-electric power station for its own needs. Underground mining. Concentrator at Hilfe Cottes. (Cap. 430 MT in 24 hours) 130,000 tons of ore p.a. Type of ore: Galena and blende, etc. 1.5 km. of railroad to Clausthal smelter. 1,109 workers in 1937.

limestone important in the making of cement and as a building stone, but crushed and tarred it is converted into macadam for road building, while burned and slaked it becomes an ingredient in mortar, plaster, and whitewash. In addition to its role in the building industry, lime is used in the manufacture of iron and steel, chemicals, especially fertilizer, sugar, and other products.

Clay, a vital material in the manufacture of cement, brick, tile and ceramics, occurs in abundance at Halle, Jena, Naumburg, Bitterfeld, Eisleben, Helmstedt, and Wittenberg (Map A3048), Kaolin, a higher type clay, is frequently found in the same geologic formation as brown coal, and in connection with other clays at Halle, Jena, and Bitterfeld.

Sand, not limited to the glass and ceramic industries, is an important ingredient in many building and manufactured products. Natural sands valuable for use in the glass industry are found at Wittenberg, Helmstedt, and Halle, while molding sand is present in these locations also, the richest area is in the region of Zeitz (Map No. A3048).

Granite used for building purposes is located in the Harz, Magdeburg, Erfurt, and especially at Saalfeld. This granite is of the dark variety and takes a high polish, which makes it attractive to builders. The Saalfeld granite quarries supplied the stone for the Saale valley dam project at Hohenwarte and for the road construction program. Most of the quarries have up-to-date machinery which accounts for the importation of stone for the finishing process. The increase in the price of labor and materials since the war has forced this industry to accent export trade rather than domestic trade.

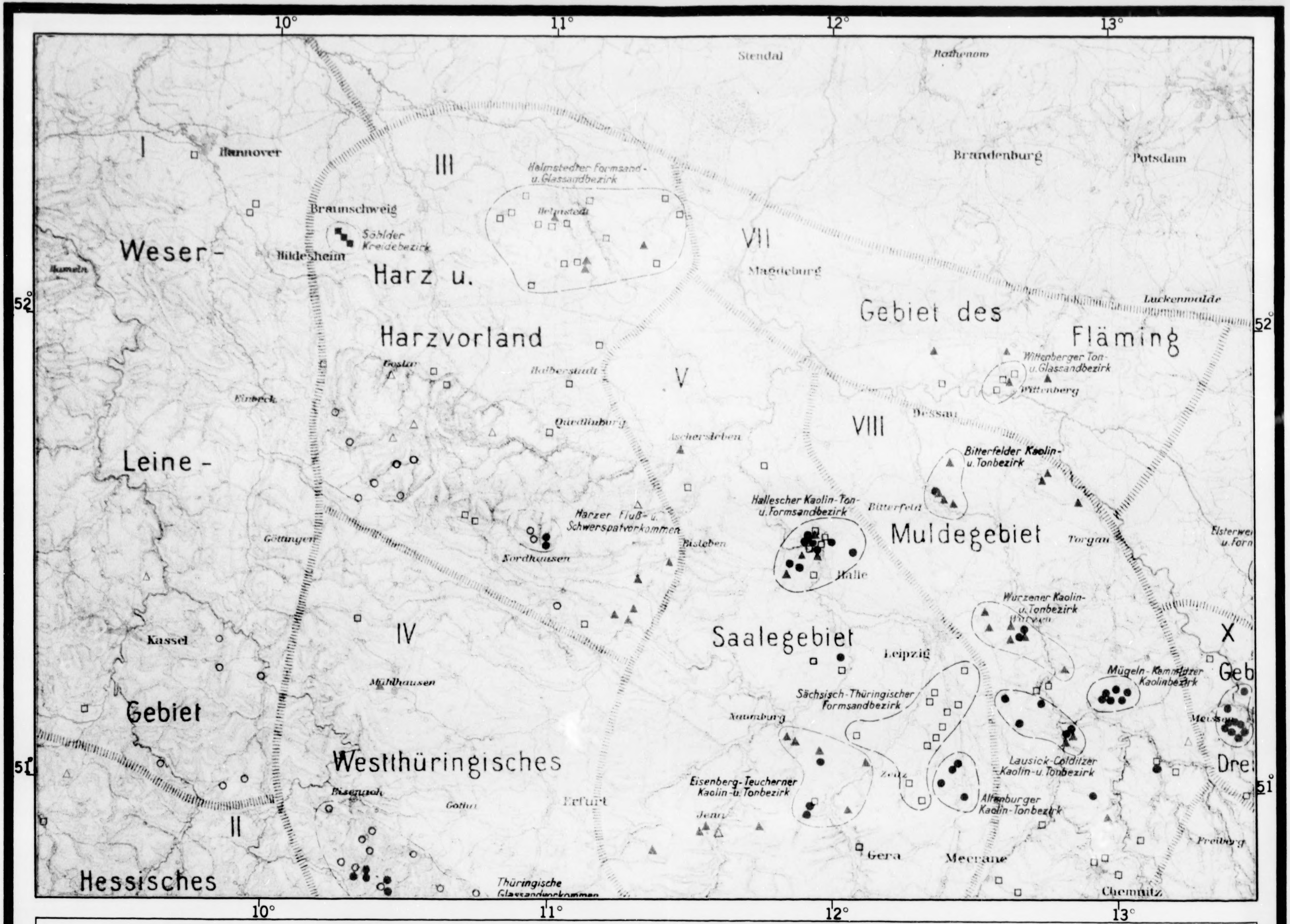
Marble quarrying in Thüringia centers around the city of Saalburg, whose quarries supplied marble for the enlargement of the Chancellory building at Berlin, and for the German Art Building (Haus der Deutschen Kunst), at München.

c. Production. The extent to which raw materials are exploited can be ascertained by the productivity of the cement, brick, glass, tile, and ceramic industries, which is mainly reflected in the trend of the building industry as a whole. (Refer to sections on these industries under VIII Manufacturing).

In spite of the abundance of raw materials, the shortage of fuel, labor, and transportation facilities has curtailed the building industry from a quarter to half its former production. The industry was increasingly active in the late thirties, when the Nazi program of public buildings, factories, roads, and canals was in full swing, but directly before the war started, building was limited to military requirements only. Since the war, building has been negligible except for the erection of fortifications.

The German Reich is experiencing a severe housing shortage, as a result of the decrease in building, increase in marriages, foreign workers, war prisoners, and air raid victims. Current German newspaper items discuss postwar housing as embracing the building of 300,000 apartment houses during the first post-war year, and 100,000 each succeeding year.

d. Labor. The following list compares the salaries and number of employees within the German Reich with those of the Central Industrial Region in the Stone and Earth Industries.


10°
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I
II
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IV
V
VII
VIII
X
Hannover
Braunschweig
Hildesheim
Hameln
Söhlder Kreidebezirk
Helmstedter Formsand- u. Glassandbezirk
Helmstedt
Stendal
Rathenow
Brandenburg
Potsdam
Magdeburg
Luckenwalde
Weser-
Leine-
Gebiet
Harz u.
Harzvorland
Gebiet des
Fläming
Goslar
Einbeck
Halberstadt
Quedlinburg
Aschersleben
Wittenberger Ton- u. Glassandbezirk
Wittenberg
Dessau
Bitterfelder Kaolin- u. Tonbezirk
Bitterfeld
Hallescher Kaolin-Ton- u. Formsandbezirk
Halle
Eisleben
Harzer Fluß- u. Schwerspatvorkommen
Nordhausen
Göttingen
Muldegebiet
Torgau
Elsterwe u. Form
Wurzener Kaolin- u. Tonbezirk
Wurzen
Saalegebiet
Leipzig
Mügeln-Kemmlitzer Kaolinbezirk
Geb
Kassel
Mühlhausen
Sächsisch-Thüringischer Formsandbezirk
Naumburg
Meissen
Dre
Westthüringisches
Zeitz
Lausick-Colditzer Kaolin- u. Tonbezirk
Altenburger Kaolin-Tonbezirk
Eisenberg-Teucherner Kaolin- u. Tonbezirk
Eisenach
Gotha
Erfurt
Jena
Gera
Meerane
Freiberg
Chemnitz
Hessisches
Thüringische Glassandvorkommen

SELECTED INDUSTRIAL MINERALS OF CENTRAL GERMANY

☐ Glass Sand
▲ Clay
☐ Diatomite
○ Barite
○ Felspar
△ Asbestos, Talc, Soapstone
△ Dye Earths
■ Chalk
● Fluorite
● Kaolin
☐ Moulding Sand

0 10 20 30 40 50 60 70
KILOMETERS

LITHOGRAPHED IN THE REPRODUCTION BRANCH, OSS

Industry	Reich	Central Industrial Region
Lime, cement,	a)*430,380	32,902
gypsum, chalk.	b)* 49,694	4,751
Natural stone	a) 423,023	35,198
	b) 136,842	11,914
Brick and heavy	a) 547,099	44,376
ceramics	b) 165,422	13,498
Building	a) 239,308	18,706
materials	b) 42,983	3,510
Ceramics and	a) 161,067	32,083
glass	b) 679,976	123,231
Building works	a) 1,220,000	149,495
	b) 7,151,000	870,886

*a) Salary (1000Rm.)
b) No. of Employees

2. Potash Industry.

a. General. The development of the German potash industry, particularly since the inception of war, has been more and more directed toward full exploitation of the natural salt deposits. These deposits are somewhat peculiar in their composition, due to certain processes of geological formation, and this peculiarity enables the Germans to derive far more benefit from their mines than other nations equally rich in natural salt reserves.

Salt deposits are laid down in two general ways, both having to do with the evaporation of salt sea water. In once case, the sea finds access to a land basin, where some salt is deposited by evaporation of the water constantly washing in and out: in the other, an arm of the sea is cut off by rising land, and, in the course of time, deposits all its non-volatile components. The difference between these two cases is due entirely to the changing solubilities of the thirty-odd salts commonly found in sea water. The first deposit will contain mainly natural salt (NaCl) which is quickly dried out, but it will not contain the potassium, magnesium, and other salts which remain in solution and are washed out by the next flow from the sea. The land-locked deposits, however, should contain all sea salts, as there is no possibility of any of the water escaping. The German deposits are of this type, and are known to contain at least sixteen different kinds of salts.

As the potassium salts are the last to come out of the solution, they overlie the others, and are consequently easier to mine. They are usually found intermixed with other top-lying salts, and thus contain some magnesium and sulphur salts which have been found beneficial to agriculture. This provides an ideal ready-made fertilizer, which needs only to be mined and crushed for some agricultural uses, resulting in an essentially simple industry.

The recovery of other materials from the potash salts has taken on importance recently. Magnesium is the most important material recovered, although aluminum, iron, vanadium, and potassium itself are also present and sometimes recovered. The industrial use of potash salts, however, has been restricted in view of their great use in agriculture. About 7 percent of the total production is used in industry.

b. Mining and Processing Procedures. Potash needs no complicated refining processes before use. The German deposits, however, are not particularly rich in the active potassium oxide (K20) fertilizer ingredient, averaging only about 13 percent by weight. This content is often raised to 40 or 50 percent by dissolving and recrystallizing the salt.

The general efficiency of potash mining and processing is rather low, albeit the simple operations involved. The upkeep of mines is expensive as the shafts are deep, and the danger of flooding omni-present. Processing procedures cause considerable depreciation of equipment, and mines are occasionally flooded out of use, involving heavy loss in equipment.

c. Factors of Production. The concentration of practically the entire European supply of commercial potash in the Central Industrial Region involves great difficulties in distribution. To supply her European satellites, Germany must either ship from the Central Industrial Region, or from the Alsace deposits, which are in most cases even less accessible. There is an obvious need for detailed organization of production to avoid congestion and maintain an even flow. This organization was secured mainly by placing the industry under the control of a few large combines. This set-up greatly simplified rationalization of the industry, and has been reflected in a 44 percent rise in mining machinery and substantially greater production. This was achieved by maintaining a minimum number of mines in operation, and working these mines almost to their theoretical capacity. More men were employed, and more man shifts were worked, and though production per man dropped, this was offset by longer working hours. The net result of this, apart from overall production, was the doubling of individual mine output. These changes are expressed statistically in Table 22.

Table 22. CHANGES IN GERMAN POTASH MINING.

Article	Figures for: early year	1938	Percentage Change
Machinery (in H.P.)	254,583 ('34)	366,209	+ 44
Total Output:			
(i) Crude salts	9,400,000 ('33)	16,400,000	+ 72
(ii) Pure K20	1,020,000 ('33)	2,200,000	+122
Prod. per mine (in m.t.)	142,000 ('25)	283,000	+100
Prod. per manshift (in m.t.)	3.08 ('28)	2.76	- 12
Prod. per man (in m.t.)	288 ('35)	325	+ 13
Manshifts worked	3,880,417 ('35)	5,952,080	+ 53
Mines in use	175 ('14)	58	- 67
Employment	13,482 ('35)	19,814	+ 46

d. Consumption. About 93 percent of the entire German potash production is used in fertilizers. Wartime has, if anything, increased its use for this purpose, as nitrogen and phosphorous, the two indispensible ingredients in fertilizers are not plentiful. Actual marketing of the prepared potash from the Central Industrial Region is broken down into two classes - it is either sold per se as fertilizer, or sold to other firms to be incorporated with nitrogen and other materials as a complete fertilizer, though some firms make the complete fertilizers themselves. There is no immediate prospect of a shortage in potash, though labor shortage and other causes may tend to reduce production in the future.

VIII. MANUFACTURING

A. Metal Industries

1. Introduction. The metal industry of the Central Industrial Region, dates back to the Middle Ages, when it was of great importance, particularly in the Harz Mountains. With the exhaustion of many ore deposits, mining and metal working declined and before the war only a few smelters and metal working plants continued the old tradition. Under the stimulus of wartime conditions, a few of the old firms, such as the Mansfeld copper concern, regained a part of their earlier importance, but most are now overshadowed by the modern war-stimulated industries. Compared with the Ruhr, the Central Industrial Region is still of secondary importance in the metal industries, nevertheless it employed by 1936 about 9 percent of all German metal workers (Map No. 3245).

The foundations of the current rapid development of the metal industries were laid during the fifty years preceding the first World War. The revival of the metal industries began with the exploitation of the local brown coal fields, was furthered by the mechanization of agricultural, food processing, and textile enterprises, and since 1900 expanded because of central location and cheap power resources. In addition, transport facilities in the northern parts, and a more than adequate supply of skilled labor in the southern section of the region were instrumental in bringing about the recent growth of the industries. The era of most rapid expansion followed 1933 and was artificially stimulated by the Nazi program of preparing for war.

The metal industries are scattered all over the region, and concentrations usually occur at traffic centers. Except for light metals, the metal working plants have to rely in part on raw materials from outside the region. Notwithstanding the recent war boom in the exploitation of inferior ores of central Germany, the metallurgical industry of the region is dependent on other areas for all its coking coal and alumina, and to a large extent for its iron lead, and zinc ores. Despite these deficiencies metal industries of the region have been able to survive and expand in response to the growing wartime needs for metal and metal products.

The metal industry of the Central Industrial Region includes both metallurgical industries of national significance and those producing iron and steel, light metals, and zinc, whereas the smelting and refining of copper, lead, and other metals is less important. The metal working industry of the region is divided into (1) basic industrial machinery and equipment producing plants, and (2) factories manufacturing other types of machinery and equipment. The first group includes producers of heavy machinery and machine tools, while the second group contains the very important optical and precision, aircraft and automotive industries as well as producers of small arms and ammunition, and of agricultural, chemical, food processing, textile, and other machinery.

2. Metallurgy.

a. Iron and Steel.

i. Importance. Central Germany's iron and steel producing industry is of secondary importance in Germany's ferrous metallurgical economy, contributing less than 10 percent of the pig iron and steel manufacturing capacity (Map No. 3245). While in earlier centuries the ores of the Harz supported a small-scale but important metallurgical industry, the present significance of the central German iron and steel industry is based on the recent development of low-grade iron ores in the Salzgitter area.

The Hermann Göring concern had planned to erect one of the largest iron and steel plants of Germany near these mines -- at Hallendorf, ten miles southwest of Braunschweig. Although plans called for creation of a plant capable of producing four million tons of steel a year, the capacity to date is only one million tons of pig iron and another million tons of steel a year. Nevertheless, the central German metallurgical industry is of great regional importance. It supplies metal-working factories in the region (many of which are near the blast furnaces and steel mills) and also exports to the northeast and southeast (see table 23 for a list of the plants).

The developments since 1936 have changed the character of the area at Hallendorf, the site of the Hermann Göring smelters. A large industrial plant has been erected in what had been an agricultural area, and railroads, roads, and even a branch canal connecting with the Mittelland Canal have been built or are under construction.

The Hermann Göring works at Hallendorf were designed especially for smelting local low-grade ores, but between 1938 and 1940 German smelters experienced increasing losses in the use of low-grade ores, even when a large proportion of high-grade ores was admixed. This factor may explain the slow development of the Hallendorf plant and the speed with which the Hermann Göring concern absorbed existing profitable enterprises in Austria, Czechoslovakia, and other Nazi-controlled areas.

With the end of war economy and the elimination of Nazi control, the Hermann Göring concern may break up and the problem will arise as to whether or not the Salzgitter-Hallendorf unit can be operated profitably in a long-range peacetime economy. Althouth the iron and steel industry of the Central Industrial Region has a more advantageous location in relation to markets in Eastern Germany than the all-important Ruhr industry, it is believed that the Hallendorf plant can compete in a peacetime economy only after a drastic capital reduction.

ii. Functional Aspects. The major iron and steel plants of the Central Industrial Region are located along its northern edge, near the Mitelland Canal (Map No.3245). The two largest concentrations, at Peine and Hallendorf, are also near iron ore mines. The total annual production of the region is about 1,400,000 MT of pig iron, over 1,700,000 MT. of steel, including 50,000 tons of quality alloy steels, and an estimated 1,000,000 tons of rolling mill products.

Due to the low-grade ore used Bessemer steel, which is not as adaptable as open-hearth steel, is the chief product of the Central Industrial Region. Although local ores form the basis for iron and steel metallurgical works, a large amount of high-grade ore is imported into the region to be smelted along with the local ores. All coking coal comes from outside the region, primarily from the Ruhr, and most of it is converted into coke within the region. It is probable that a considerable amount of local iron ore is shipped to the Ruhr as backfreight for coal and coke received. Limestone is probably to a large extent of local origin. In the case of smaller plants, power is supplied mainly by the German electric grid with supplemental or stand-by units privately owned. The largest unit, the Hallendorf plant, has a large base-load power plant of its own. All plants have railroad connections, many of which are plant operated. Raw materials, however, are transported chiefly on the inland waterways, in particular the Mittelland Canal and the Elbe River which link the region with the Ruhr, the Saxon hinterland, North Sea ports, and indirectly with Berlin and the Baltic. The labor requirements are relatively small; probably not more than 12,000 workers are engaged in iron and steel metallurgy in Central Germany.

Table 23. IRON AND STEEL METALLURGICAL PLANTS

Firm	Location	Production & Capacity	Equipment	Remarks
Reichswerke A.G. für Erzbergbau und Eisen-Hütten "Hermann Göring"	Hallendorf (10 miles SW of Braunschweig)	1 million MT of pig iron; 1 million MT of steel- annual capacity. Prod. blooms, billets, sections, wire rods, & wire. Rolling mill with 1.25 million MT intake capacity of ingots.	8 blast furnaces, 6 Bessemer converters, rolling mill, coke ovens, thermal power plant with 250,000 kw capacity, by-products plant, 4 lime kilns, ore preparation plant. RR, road, and canal connections under construction. Water by pipe from Börssum.	Plant still expanding. Metal working units 1¼ miles distant.
Fried. Krupp Grusonwerke, A.G.	Magdeburg-Buckau	Capacity: 29,000 MT of special steels	4 electric furnaces, 3 open-hearth furnaces (100 T capacity), 6 crucible furnaces.	Part of large metal-working plant.
Otto Gruson & Co.	Magdeburg-Buckau	Capacity: 21,000 MT of special steels	5 electric furnaces	Part of large metal-working plant.
Ilseder Hütte	Peine	400,000 MT of pig iron & 700,000 MT of steel-annual capacity. Production: 474,000 MT of rolling mill products in 1928.	6 blast furnaces, 3 open-hearth furnaces (35 T cap.) 6 Bessemer converters (25 T cap.), rolling mill, coke ovens, power plant, 176.9 km. of RR, harbor at Mittelland Canal	Also supplies gas to Hildesheim and other towns.
Eisenhüttenwerk Thale A.G.	Thale	Capacity: 28,000 MT of alloy steels	2 electric & 3 open-hearth furnaces (2 - 25 T cap.) Important rolling mill. Own railroad connection. Reserve power plant. Rebuilding program began in 1937.	Also metal-working plant.

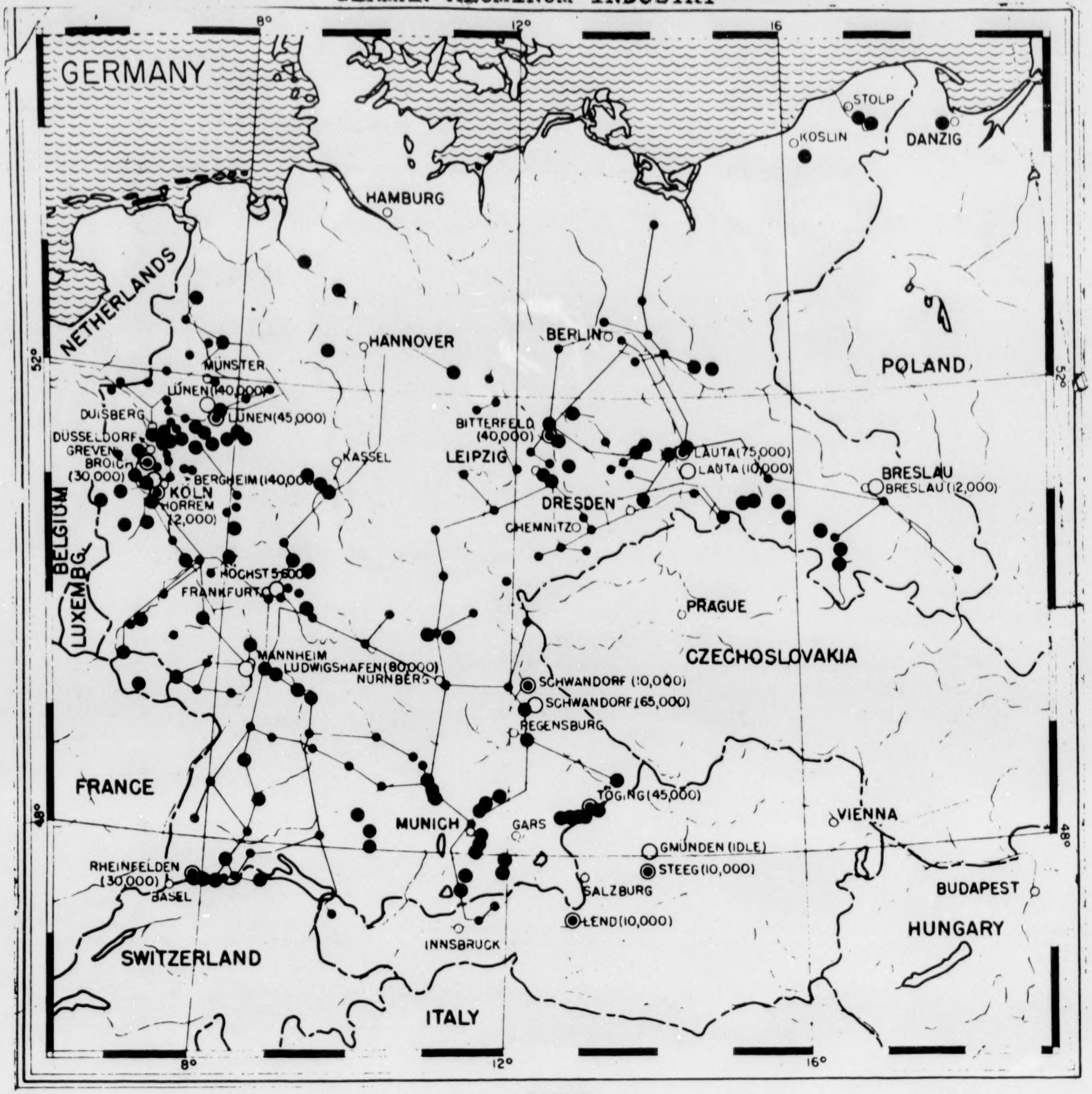
b. Light Metals.

i. Evaluation. The light metal producing industry of Central Germany consititutes an important segment of the German metallurgical industry (See Table 24). It is estimated that at present this region accounts for about four-fifths of Germany's magnesium and more than one-fourth of its aluminum production (See Map of German Aluminum Industry). The world's first electrolytic production of magnesium on a commercial scale was undertaken at Bitterfeld where one of the oldest German aluminum plants is located (Map No. 3245). The increase in the production capacity of these industries, begun before the war, has continued to the present, not only because light metals are essential in the production of aircraft and incendiary bombs, but also because they serve as substitutes for many metals which are now difficult for Germany to obtain.

The light metal producing industry of the Central Industrial Region plays a **relatively** unimportant role in the economy of the region. Although it undoubtedly supplies the aircraft and, to a smaller extent, other war industries, it has not brought on extensive changes in the physical makeup, the sociological structure, or the industrial pattern of the region. The chemical industry, in particular the IG Garbenindustrie AG, is closely connected with the light metal industry of the Central Industrial Region, either owning or controling a large proportion of it.

ii. Location. The light metal industry is concentrated in an area twenty to forty-five miles south and southeast of Magdeburg (Map No. 3245). While aluminum and magnesium are refined at Bitterfeld and Aken, magnesium plants are also located in Stassfurt (The only other magnesium plant of the Altreich is at Heringen west of Eisenach, just outside the Central Industrial Region). These

GERMAN ALUMINUM INDUSTRY


GERMANY
NETHERLANDS
BELGIUM
LUXEMBG.
FRANCE
SWITZERLAND
ITALY
CZECHOSLOVAKIA
POLAND
HUNGARY
HAMBURG
HANNOVER
BERLIN
STOLP
KOSLIN
DANZIG
MÜNSTER
LÜNEN (140,000)
LÜNEN (45,000)
DUISBERG
DUSSELDORF
GREVEN
BROICH
(30,000)
KÖLN
HORREM
(2,000)
BERGHEIM (140,000)
KASSEL
BITTERFELD
(40,000)
LEIPZIG
LAUTA (75,000)
LAUTA (10,000)
BRESLAU
BRESLAU (12,000)
DRESDEN
CHEMNITZ
HÖCHST 5,600
FRANKFURT
PRAGUE
MANNHEIM
LUDWIGSHAFEN (80,000)
NÜRNBERG
SCHWANDORF (10,000)
SCHWANDORF (65,000)
REGENSBURG
TÖGING (45,000)
VIENNA
MUNICH
GARS
GMUNDEN (IDLE)
STEEG (10,000)
SALZBURG
LEND (10,000)
RHEINFELDEN
(30,000)
BASEL
INNSBRUCK
BUDAPEST
8°
12°
16°
52°
48°

LEGEND

● POWER PLANTS

○ ALUMINA PLANTS

◉ ALUMINUM REDUCTION PLANTS

0 20 40 60 MI

CITIES ○

SUBSTATIONS ●

INTERNATIONAL BOUNDARIES (1938) — — —

TRANSMISSION LINES ——

STATISTICS 1941

factories depend on power generated from local brown coal fields. The magnesium plants use potash waste liquors of the chemical industry located in this region. The development of the light metal industry in central Germany, although due primarily to the availability of power and raw materials, was further stimulated by the desire of the German military planners to become independent of imports of these strategic metals.

iii. Production and Raw Materials. Production figures for German aluminum and magnesium metallurgy have not been made public for some years, and only estimates are available. At the beginning of the war, aluminum production was concentrated at Bitterfeld, where annual output was estimated at 30,000 MT. Since then, capacity is believed to have been increased to as much as 50,000 MT, and a new plant with 10,000 MT capacity has been installed at Aken according to reports. Magnesium production in the Central Industrial Region is believed to have increased from 13,500 MT in 1939 to 25,500 MT in 1943 by the construction of two new plants at Stassfurt. Both aluminum and magnesium are produced primarily by an electrolytic process, thermal production of magnesium apparently not having passed the experimental stage.

Most of the raw materials used for aluminum metallurgy are not produced in the Central Industrial Region. About two tons of alumina (the intermediate product in the production of aluminum from bauxite), one sixth of a ton of electrode-carbon, and a smaller amount of cryolite are needed for refining one ton of aluminum. Alumina is shipped to the Central Industrial Region from southern or western Germany, and its supply is dependent on bauxite mining in Southern France, Hungary, Italy, and Yugoslavia. Electrodes are produced by IG Farben, probably at Bitterfeld, while synthetic cryolite is known to be produced in various German plants outside the Central Industrial Region.

The magnesium metallurgical plants rely heavily for raw materials on local potash waste liquors and, to a lesser degree, on Austrian magnesite, and on dolomite, which is widely distributed throughout Axis Europe. Electrodes are probably furnished by the same sources that supply the aluminum industry.

The most important requirement of the light metal industry is electric power. At least 20,000 kwh. are needed in the electrolytical process for each ton of metal produced. The little-used thermal process for magnesium requires 17,000 kwh. for one ton of metal.

Raw magnesium and aluminum, as produced by the refineries, are in most instances alloyed with each other or with other metals. These alloys are marketed in various semi-finished forms, such as sheets, castings, wire, etc. The IG Farben plant at Bitterfeld and the Hettstedt plant of the Mansfeld copper concern are the two principal light metal alloy plants in the Central Industrial Region.

c. Copper.

1. Evaluation. Since supply of copper from domestic ores satisfies only 10 to 20 percent of the requirements of Germany, the country is dependent chiefly on imports. Before the Hitler regime Germany imported refined copper in preference to lower-grade unrefined copper.

. The Nazis reversed this procedure by importing less of the refined copper and increasing the imports of lower-grade copper. To utilize this, they built a copper refining industry second only to that of the

Table 24. LIGHT METAL PRODUCING PLANTS IN THE CENTRAL INDUSTRIAL REGION

Firm	Location	Production & Capacity	Remarks
A. Aluminium Metallurgy			
Aluminiumwork GmbH	Aken	10,000 MT 1943 estimated annual capacity	Recently opened
	Bitterfeld	50,000 MT 1943 estimated annual capacity	Also Alloy plant. Uses 200 million kwh p.a.
B. Magnesium Metallurgy			
IG Farben	Aken	8,000 MT estimated annual capacity	2 plants reported here. Uses 190 million kwh p.a. at full capacity.
	Bitterfeld	5,500 MT ~~estimated annual~~ capacity	Uses also electrothermal process. Uses 120 million kwh p.a. at full capacity
	Stassfurt	Plant I : 6,000 MT)estimated annual Plant II: 6,000 MT)capacity	Uses 288 million kwh p.a. at full capacity
C. Light Metal Alloys			
IG Farben	Bitterfeld	Aluminum and magnesium alloys	Castings, sheets, wire, tubes, extrusions, etc.
Mansfeld AG	Hettstedt	Aluminum and magnesium alloys	Sheets, rods, wire, etc.
Rheinmetall-Borsig AG	Sömmerda	Aluminum and magnesium alloys	Rods, tubes, forgings, extrusions
R. Lauterbach	Wernigerode	Aluminum alloys	Castings

United States. Although the Norddeutsche Affinerie in Hamburg is the most important smelter and refinery in Germany, Mansfeldscher Kupferschieferbergbau AG. at Eisleben and Hettstedt on the eastern border of the Harz Mountains still remains the only German concern producing large tonnages of copper from domestic ores (Map No. 3245).

Besides the Mansfeld Company there are only two other copper metallurgical plants in the Central Industrial Region: the domestic ores of the Rammelsberg mine are smelted and refined at the small Unterharzer Berg- und Hüttenwerke GmbH in Oker (west of Goslar on the northern edge of the Harz Mountains), while domestic and imported scrap is treated at the Kupferwerke Ilsenburg AG at Ilsenburg (east of Oker). These three companies in the Central Industrial Region accounted for about 20 percent of the total German output, which in 1938 amounted to about 242,000 MT of refined copper (See Table 25 for a list of copper plants and their estimated production).

ii. Functional Aspect. The ore from the Mansfeld mines is crushed and sorted at the mines. It is then transported by rail to the smelters--the Krug smelter at Eisleben and the Koch smelter at Helbra, where it is again sorted. The finely crushed and picked ore is either briquetted or otherwise processed on Dwight and Lloyd machines. Twelve large blast furnaces smelt the material, producing a raw matte of 40 to 45 percent copper. Copper matte is an iron-copper sulphide containing generally from 30 to 50 percent copper plus most of the precious metals present in the original ore. The Krug smelter uses three large water-jacket furnaces while the Koch smelter uses nine smaller ones which are cooled by water spray.

The raw matte then goes to the converter plant at

Table 25. COPPER METALLURGICAL PLANTS IN THE CENTRAL INDUSTRIAL REGION

Name of Plant	Estimated Current Annual Production	Remarks
Mansfeld Aktiengesellschaft für Bergbau und Hüttenbetrieb 1. Mansfeldscher Kupferschieferbergbau A.G. Eisleben 2. Kupfer- und Messingwerke Hettstedt	25,000 tons electrolytic refining	1. The Eisleben plant smelts the ores from the Mansfeld mine but does not do refining. 2. The Hettstedt plant smelts and refines blister copper from Eisleben, copper ores and mattes from the Mansfeld mine and also copper scrap. Capacity: 25,000 tons fire refining; more than 12,000 tons cathodes. Large and modern copper and brass rolling mills adjoin the refinery. Employed 226,065 in 1937.
Kupferwerke Ilsenburg A.G., Ilsenburg, Harz	10,000 electrolytic refining 14,000 fire refining	Smelters and refineries used chiefly in treatment by domestic and imported scrap. Electrolytic refining which treated (probably still does) 12,000 tons of Mansfeld production for redelivery in the form of cathodes. Capacity (estimated): 50,000 tons refined copper 12,000 tons electrolytic copper. Facilities for aluminum rolling.
Unterharzer Berg- und Hüttenwerke GmbH, Oker, Harz	3,000 electrolytic refining	Smelting and refining of ores from the Rammelsberg mine. More important as zinc and lead producer.

Hettstedt where it is first melted down in cupola furnaces and then blown in converters either to a high-grade matte of 70 percent or a blister of 98 percent copper. About two-thirds of the total production was, in peacetime, blown to high-grade matte and then worked into copper which is marketed under the trademark "MRA". This is a tough grade of copper, containing some nickel. During this last process, the matte is desilverized by a washing and leaching process (Ziervogel process) and then returned to the smelter. The other third of the production is blown to blister copper, cast into anodes, and refined by electrolysis. Besides silver, other by-products such as antimony, bismuth, selenium, and tellurium may be recovered in small amounts. Also the gases which are formed in roasting the copper concentrates contain sulphur dioxide which can be utilized to make sulphuric acid.

The Mansfeld Company, in addition to the parent plant, owns a large and modern copper and brass plant in Hettstedt which produces wire, cable, sheets, strip, tubes, rods, plates, and similar articles in copper brass, bronze, and German silver. Before the war this plant employed about 2,000 workers. It also owns a plant in Düsseldorf which manufactures articles of silver, and instruments.

A special organization with an office in Berlin handles all sales of metal, but the main office of the Mansfeld Company is still in the old mining town of Eisleben. In order to insure a regular supply of coal, the company acquired the Mansfeld mine at Langendreer, in Westfalen, and half interest in the Sachsen mine at Heessen, near Hamm, in Westfalen. In 1931 the two mines employed about 3,500 men and had a regular total annual production of 1,300,000 MT. The company also acquired the Pfännerschaft at Halle which produced about 2,250,000 MT of brown coal in 1931. The

Mansfeld Company does not use the total supply of these coal mines. In 1937 the whole Mansfeld AG. employed 26,065 of which 9,000 worked in the mines.

The Mansfeld Company formerly sent (and probably still does) some of its production for electrolytic refining to Kupferwerke Ilsenburg AG., located near the state railway station of Ilsenburg. This company also has a smelter and also an electrolytic refinery, with a capacity of about 1,000 MT a month. The plant was formerly one of the main works of Hirschkupferwerke, which were built for the production of heavy copper fire-boxes for locomotives and therefore has excellent crane facilities throughout the buildings and yards. The large rolling mill has facilities for the rolling down of five-ton copper cakes from about twelve-inch thickness to about four or five inches. It also has finishing rolls, heavy hydraulic shears, and presses. The new plants completed in 1938 are used mainly in the recovery of copper from copper scrap. This addition confirms the view that the Nazis have had great success in the recovery of copper from scrap. The company is provided with producer gas generated from briquetted brown coal from the Halle district and with electric power from the interstate power net.

Unterharzer Berg und Hüttenwerke GmbH in Oker is a small plant concerned with smelting and refining the ores from the Rammelsberg mine. Since it is more important as a lead and zinc producer, it will be discussed more fully under that industry.

d. Zinc. Central Germany has an important zinc metallurgical industry. All of Germany's electrolytic zinc refining capacity (over 60,000 MT) is located here, as well as 15 to 20 percent of her thermal zinc production capacity. (Map No. 3245) Only electrolytic zinc has sufficient purity to be well suited for the manufacture of brass and other alloys. Since such alloys are essential for the production of armaments, this industry is of great functional importance for the German war economy. The zinc producing plants are also closely linked with the other non-ferrous metal industry of the region.

Central German zinc production is concentrated in two plants--an electrolytic plant at Magdeburg, and a thermal plant at Oker on the northern edge of the Harz. The Oker plant is part of the non-ferrous industry exploiting local ores, while the location of the Magdeburg plant was selected because of its transportation facilities and strategic position.

Recent production statistics or estimates are not available for zinc smelters in Axis Europe, but it is believed that they are not working at full capacity. The Magdeburg plant has an annual capacity of over 60,000 MT of electrolytic zinc, and the Oker plant 40,000 MT of low-grade zinc and possibly sufficient facilities to refine the raw zinc to a degree of purity approximating that of electrolytic zinc.

The Magdeburg plant is owned by Georg von Giesche's Erben, a firm with zinc mines in German Upper Silesia. After losing its metallurgical facilities to Poland after the last war, this firm constructed, in 1932-1933, the Magdeburg refinery for smelting its Silesian ores. The mines and the refinery are linked by inland waterways. The plant is north of Magdeburg on the west bank of the Elbe along a canal leading into the river. It has also rail connection and receives its power -- 3,600 kwh. are required per ton of zinc -- from a near-by power plant. The Magdeburg plant also produces minor amounts of cadmium, as well as sulphuric acid.

The Oker plant is owned by Unterharzer Berg- und Hüttenwerke, a firm controlled by the Prussian state. The smelter receives zinc concentrates from the near-by Rammelsberg mine with which it is connected by a narrow-gauge railroad. Some power is supplied from the national electric grid, but the factory also has its own power plant.

The only important producer of zinc alloys in the Giesche plant at Magdeburg, which is Germany's main plant in this field.

e. Other Metallurgy. The metallurgical industry of the region produces a variety of other metals in relatively small quantities. (Table 26) Lead, nickel, and cobalt are produced separately, while other metals -- like cadmium, silver, or gold -- are by-products or other metallurgical processes. Altogether, none of the available capacities are believed to exceed 20 percent of German production capacity.

Lead is smelted and refined primarily from local ores mined in the Harz area and the region contains about 8 percent or German lead-smelting and refining capacity. A shortage of ore has caused these plants to be operated at far below capacity, notwithstanding the urgent demand of war industries. In particular, no substitute for the use of lead in storage batteries has been found. The region has a number of lead-processing plants, some of which work for the chemical industry.

Within the region, there is a nickel smelter located in Magdeburg and a refinery owned by IG Farben. The exact location of the latter has been kept secret but is believed to be near one of the large IG Farben plants in the eastern part of the region.

A major cobalt refinery is located in Goslar and a minor plant in Schönebeck. Cobalt catalysts, essential for synthetic oil production, are manufactured at Lützkendorf, near Merseburg.

Table 26. OTHER METALLURGICAL PLANTS IN THE CENTRAL INDUSTRIAL REGION

Firm	Location	Production & Capacity	Remarks
	COBALT REFINERIES		
Gebrüder Borschers AG	Goslar		Major plant
Chemische Werke Schönebeck	Schönebeck		Minor plant
	COBALT CATALYST PLANT		
	Lützkendorf	150 MT p.a. Also regeneration	Opened June 1938
	NICKEL SMELTERS		
Schlesische Nickelwerke AG (Krupp controlled)	Magdeburg	Estimates as high as 2,500 MT annual capacity	Uses Silesian and Creek ores
	NICKEL REFINERIES		
Fr. Krupp Grusonwerke	Unknown	2,500 MT p.a.	Uses chloride process
AG Mansfeld AG	Hettstedt	13.5 MT p.a.	Alloys f. Göring concern
	NICKEL PROCESSING		
Fr. Krupp Grusonwerke AG	Magdeburg-Buckau	Rolled Nickel	
	LEAD METALLURGY		
Unterharzer Berg- und Hüttenwerke GmbH (controlled by Prussian State)	Oker	Cap. : 15,000 MT crude & 15,000 MT refined Prod: 1942: 9,000 MT (reported)	Ore from Rammelsberg mine. Power from grid. Also 8,000 kva plant
Oberharzer Berg und Hüttenwerke GmbH. (Controlled by Prussian State)	Clausthal Lautenthal	Cap.: 15,000 MT crude & 15,000 MT refined lead.	
Hans Heinrich Hütte GmbH	Langelsheim	Cap.: 12,000 MT of crude & 12,000 MT of refined lead	
Mansfeldscher Kupferschiefer-Bergbau AG	Hettstedt	Cap.: 3,000 MT of crude & 3,000 MT of refined lead	Uses own ore.
	LEAD PROCESSING		
L.Kessler & Sohn GmbH	Bernburg	Rolled lead, Lead coated plates, etc.	
Sächsisch-Anhaltische Armaturenfabrik und Metallwerke AG	Bernburg	Lead alloy antifriction metal.	

(Continued)

Table 26 (continued)

Firm	Location	Production & capacity	Remarks
Arzberger Schöpff & Co. GmbH.	Eisenach	Lead chemicals	
Bleiwerk Goslar GmbH	Goslar	Rolled lead, pipes, wire, antifriction metal.	Important
Schäfer & Budenberg GmbH.	Magdeburg	Lead products.	
KG Harzer Bleiwerke Hoelemann & Wolff	Osterode	Lead chemicals.	
Harzer Bleiweissfabrik L. Heubach	Osterwieck	Lead antifriction metal & chemicals.	
Metallindustrie Schönebeck AG.	Schönebeck	Lead products.	

Cadmium is recovered as a by-product of zinc metallurgy and silver and gold are found in copper, zinc, and lead ores.

3. Basic Industrial Equipment and Machinery. The term basic industrial equipment covers a wide range of goods, whose manufacture involves a series of specialized metal-working operations together with skilled labor and engineering talent, and specialized plant and equipment. The production of this type of equipment is essential to German industry, as these are the machines which form the entire basis of the industrial economy. They are responsible for, or contribute to, the manufacture of other machinery for the production of consumer goods (Table 27).

Basic industrial equipment may be treated in two general groups: heavy industrial machinery and equipment, (section 1 following), and specialized metal-forming equipment (section 2 following).

a. Heavy Industrial Machinery and Equipment.

1. Definition. Heavy industrial machinery and equipment is a term applied to a variety of goods and equipment. The main types of these products are summaried below:

Metallurgical plant equipment: smelting equipment, converters, furnaces, ladles, charging machines, rolling mills of various types, heavy presses, forges, etc.

Mining, stone, clay and glass machinery: crushers, grinders, rollers, special types of equipment for the mining, briquetting, brick, and ceramic industries, etc.

Engines and turbines: steam, water, and internal combustion

Construction and conveying equipment: cranes of all types, conveyors, elevators and lifts, earth movers, cement mixers

General industrial equipment: compressors, pumps of all types, ventilators, industrial equipment

To these main classifications may be added that of heavy armaments (heavy guns, tanks, armor plate), which, being mainly a wartime product, cuts more or less indiscriminately across the peacetime divisions of the industry.

ii. Regional Basis. The production of heavy industrial machinery and equipment in the Central Industrial Region is but one part of the important industrial concentration, (Map No. 3245) centering in Leipzig, Dresden, and Chemnitz in Land Sachsen and extending into Provinz Sachsen and Thüringen, which, while ranking far below the Ruhr-Rhine region in importance, compares favorably with other German industrial regions. Although the heavy machine industry of the Central Industrial Region thus represents only a portion of total national development, it has been able to assume more than a regional aspect because of the excellent transportation facilities which are available. Magdeburg is the central point of rail connections to the Ruhr, to Berlin, and to southern Germany, as well as being located on the Mittelland Canal. Not only does this facilitate the bringing in of necessary raw materials, but it enables the products of the Central Industrial Region to be sent to all parts of Germany and to be exported.

In the regional economy of the Central Industrial Region, the heavy engineering industry is very important. Much of its production is conditioned by the needs of other local industries.

Heavy equipment for both underground and open-pit mining is one example; another may be seen in the manufacture of equipment for various types of metallurgical plants.

Other products are also supplementary to the needs of the industries of the region: engines of various types, cranes and conveying equipment, compressors and pumps. German authorities have been reticent in providing figures from which an exact quantitative impression of heavy industry in the Central Industrial Region may be derived. Some indication, however, may be obtained from the fact that in 1938 the general category of metal and machine industries ranked second only to building and construction, and, with 357,700 employees, accounted for nearly a third of all industrial employment.

iii. Raw Materials. The raw material basis of the heavy machinery industry of the Central Industrial Region may be found primarily in the large brown coal deposits of the region, which provide cheap and ample power for factory machines of all types, but are wholly unsuited to the smelting of iron ore and the production of steel. Thus, for iron and steel the Central Industrial Region is dependent mainly upon other sections of Germany, primarily the Ruhr, with which the Mittelland Canal and the railroad network provide transportation facilities even though the low-grade iron ore deposits of the Salzgitter region have come into greater prominence through intensive working by the Hermann Göring Works.

iv. Conversion. Many plants in the Central Industirial Region are known to have been converted to the production not only of heavy armaments but also of products important under war conditions. The extent of this conversion, however, is not easily determined, and in the case of the numerous smaller plants, is quite conjectural.

Conversion in heavy industry does not necessarily follow the practice of producing war products similar to those manufactured in peacetime. Frequently, products entirely different in character to those normally produced may be manufactured; in other cases a plant may adhere primarily to peacetime products which have become important in the war economy.

v. Locational Pattern.

(1) Magdeburg. Magdeburg is by far the most prominent center of heavy industry in the Central Industrial Region. The city, on the banks of the Elbe near its junction with the Mittelland Canal, is a rail and highway center of first importance, and is well situated for the importation of raw materials for the heavy machinery industry and for the shipping of its finished products. Of first place among all industrial developments in Magdeburg is Friedrich Krupp Grusonwerke AG. This plant produces in peacetime all types of iron ore smelting and steel mill equipment, cranes, conveyors and elevators for industrial purposes, and mining and agricultural equipment. Its most important wartime products are armored plate, armored cars, and medium tanks, together with guns, ammunition, and other armaments. Its works are large and well equipped with open-hearth and electric furnaces, forges, presses, etc. It is believed to have been considerably expanded in recent years, but inasmuch as its peacetime employment was about 3,000, present reports of 35,000 workers being employed appear improbable.

Second in importance is Maschinen Fabrik Buckau R. Wolf AG. and its subsidiary, Otto Gruson & Co. The Wolf concern has two plants, at Buckau and Salbke, both suburbs of Magdeburg. The Buckau plant specialized in peacetime upon machinery for various industries, such as briquetting, quarrying, mining, sugar and chemical manufacture, together with locomobiles, tractors, and pumps. It is now reported working upon the production of medium tanks. It employs 3,500 workers. The Salbke plant produces steam engines and boilers and has been reported as partially occupied with the fabrication of submarine and heavy infantry weapon components. It has its own power station and employs about 4,000 workers. Otto Gruson & Co., at Magdeburg-Buckau, fabricates steel for special purposes and supplies equipment to Krupp for tanks and armored fighting vehicles. It is equipped with a large foundry and open-hearth and electric furnaces.

George Becker & Co., another important Magdeburg firm, is a prominent producer of haulage equipment for mines, as well as of conveyors and elevators.

(2) Brunschweig. Although primarily important for the aircraft industry, there are two large heavy engineering establishments in Brunschweig. The major plant, Mühlenbau und Industrie AG(MIAG), has three factories in Brunschweig. In peacetime this organization produced various types of milling equipment, crushing and pulverizing machinery, turbines, and conveyors. Now its three plants are reported making various types of munitions, and, as well, airframes. The most important of the three plants, the Neupetritor Werke, has several new buildings, a large foundry, forges, a sheet metal plant, and several mechanical shops. It has its own power plant. About 5,000 workers are employed here, while the other two plants employ 5,000 and 2-3,000, respectively.

(3) Dessau. In Dessau are three important heavy engineering plants, G. Polysius AG, Bamag-Meguin AG, and the Dessauer Waggonfabrik. Polysius produces rotary furnaces, conveyors, and ventilation equipment, and during the war has been reportedly making aircraft armament and

machine guns. Bamag-Meguim (which has two other plants at Berlin and Cologne) manufactures blast-furnace and steel production equipment and installations for chemical plants. The Dessauer Waggonfabrik specializes in railroad passenger and freight cars, but during the war has been reported producing light tanks and aircraft.

(4) Eisenach. The most important plant in Eisenach, and one prominent in the German armament industry is that of Bayerische Motorenwerke (BMW). Although normally producing motor vehicles, it is now engaged in addition to airplane engine manufacture, in the manufacture and assembly of caterpillars for tanks and tractors, motorcycles, field kitchens, and anti-tank and machine guns. It employs about 6,000 workers.

(5) Halle. In Halle are numerous smaller producers of heavy machines. The most important plant is Wegelin & Hübner AG. In addition to steam engines, pumps, and compressors, it is an important producer of equipment for the chemical industry, for rayon production, and for distillation. It has its own power station. Other important centers are Erfurt and Gera, and there are numerous other plants located throughout the Central Industrial Region (See table 27).

b. Specialized Metal-Forming Equipment.

i. Definition. Specialized metal-forming equipment includes, in general, three major types of machinery, as summarized below:

Machine tools: non-portable machines designed to shape metal by cutting, chipping or grinding; includes lathes, milling machines, slotting machines, drills, and grinders and machine tool accessories, such as cutting tools, jigs, and fixtures

TABLE 27. CHIEF MANUFACTURERS OF HEAVY INDUSTRIAL MACHINERY & EQUIPMENT IN THE CENTRAL INDUSTRIAL REGION

Firm or Owner	Location	Production & Capacity	Equipment & Facilities	Remarks
Deutsche Tiefbohr AG	Aschersleben	Boring machines and mining equipment		About 800 workers
Jung & Dittmar AG	Bad Salzungen	Iron and metal goods	Has rolling mill, foundry	
August Schubert	Bitterfeld	Briquetting presses		
Braunschweigische Maschinenbauanstalt	Braunschweig	Steam engines, pumps, boilers	Has foundry, own power station	
Büssing-NAG Vereinigte Nutzkraftwagen AG	Braunschweig	Trucks, busses, trailers. Now producing; artillery tractors, light tanks, Diesel and gas engines, components, gear boxes, axles, clutches, etc. Estimated tank output (1941) 50 per month	Four large production halls, forming square.	Estimated 1,500 employed **Important**
Eifrig & Keldenich	Braunschweig	Good lifts		
Herfurth & Co.	Braunschweig	Swing conveyors		

TABLE 27 (Cont'd)

Firm or Owner	Location	Production & Capacity	Equipment & Facilities	Remarks
Mühlenbau und Industrie AG	Braunschweig	Machinery for flour, cement, paper, and woodworking mills; silos and elevators; crushing and pulverizing machinery; hydraulic turbines; conveyor and elevator devices. Reported producing Mark II, III tanks.		Important
Neupetritor Werke (Amme, Giesecke, & Könegen Werke)	Braunschweig	Reported making shell casing. Probably other munitions.	47 acre site, 12.3 acres built up. Buildings: several new concrete sheds; office; main assembly hall; large foundry and forges; sheet metal plant; mechanical shops. Power plant: 3 or 4 2-tube steam boilers; steam-driven dynamos; batteries for emergency lighting	Employment (1941) about 5,000
Luther Werke	Braunschweig	Reported making airframes		Employment (1941) about 5,000.
Waggum Werke	Braunschweig	Reported making munitions.		Employment (1941) 2-3,000
F. Wiegmann Nachf.	Braunschweig	All kinds of pumps.		

TABLE 27 (Cont'd)

Firm or Owner	Location	Production & Capacity	Equipment & Capacity	Remarks
Lahag-Meguin AG	Dessau (Berlin, Köln)	Smelting equipment; open hearth furnaces, converters, charging machines, ladle cranes, casting carriages, ingot carriages, ladles. Blast furnace equipment, casting machines, etc. Chemical plant installation.	Has foundry.	
Dessauer Waggonfabrik	Dessau	Railroad cars, passenger and freight. Light tanks, estimated production (1941) 30 per month.		
Kaloriferwerk Hugo Junkers GmbH.	Dessau	Air heating apparatus, ventilating & refrigerating machinery.		
G. Polysius AG	Dessau	Rotary furnaces, conveyor equipment, ventilation equipment, 3.7 cm. guns for aircraft; 13 mm. machine guns.		
Gebr. Sachsenberg AG	Dessau-Rosslau	Dredgers, engines, speedboats, small torpedo boats, river craft. Steam ~~engines, equipment for~~ alcohol and yeast production, machinery ~~and~~ conveyors for brick and clay pipe factories.		947 employees (1936037)
Dr. Bernhardi Sohn	Eilenburg	Brick and tile making machines.		
Autogenwerk Apparat-bau J. Buttgereith	Eisenach	Welding and cutting machinery.		

TABLE 27 (Cont'd)

Firm or Owner	Location	Production and Capacity	Equipment & Facilities	Remarks
Bayerische Motorenwerke	Eisenach	Air cooled aero-engines; anti-tank and machine guns; parts & assembly of caterpillars for tanks and tractors; motorcycle parts and assembly; field kitchen; gears and gear boxes.		Very important. 6,000 workers
Eisenacher Karosserie- u. Wagenfabrik GmbH. vorm. E. u. K. Assman.	Eisenach	Welding and cutting machines		
Gustav Schulze	Eisleben	Roof tile machines.		
Hans Erich Rose	Elsterwerda	Gear, cooling medium, and oil pumps		
J.A. John AG.	Erfurt	Air conditioning apparatus, fans, ventilators, dust removers.		
Mako Maschinen Co. GmbH.	Erfurt	Air and vacuum pumps.		
Gustav Linse	Erfurt	Traveling cranes, elevators, goods and passenger lifts.		
Carl Schirmeyer K.G.	Erfurt	Acetylene plants and apparatus; welding and cutting machines;		
Schoof & Weigel	Erfurt	Elevators, rollers, and swing conveyors.		

TABLE 27 (Cont'd)

Firm or Owner	Location	Production and Capacity	Equipment & Facilities	Remarks
Otto Schwade & Co..	Erfurt	Centrifugal pumps.	Has foundry.	
J.A. Topf & Söhne	Erfurt	All kinds of industrial furnaces. Engineering works		
Alfred Kratsch	Gera	Power driven piston pumps.		
Heinrich Leo	Gera	Motor car lifting platforms.	Has foundry.	
Konrad Modroch Maschinenfabrik	Gera	Plate shears.		
R. Sonntag GmbH.	Gera	Shears, presses, straighteners.	Has foundry.	
"Apag" Apollo Plantectorwerk AG	Gössnitz (e. of Schmölln)	Piston compressors and centrifugal pumps.	Has foundry.	Important
Brand & Grasemann Nachf.	Gotha	Air exhaustion equipment. 5:286	Has foundry.	
Gothaer Waggonfabrik AG	Gotha	Aircraft assembly. Also reported producing locomotives, limbers, and heavy tanks.		
Karl Beniger	Halle	Produces ventilators.		
Berbet Maschinenbau	Halle	Brick and tile making machines, cement making installations.		

TABLE 27 (Cont'd)

Firm or Owner	Location	Production and Capacity	Equipment & Facilities	Remarks
A.L.G. Dehne	Halle	Compressors and pumps.	Has foundry.	
Hallesche Maschinenfabrik und Eisengiesserei	Halle	Rayon production equipment, steam engines, pumps, boilers, refrigeration equipment.	Foundry, machine shop, boiler shop, sheet metal shop.	
Helme & Hans Herzfeld	Halle	Goods and passenger lifts.		
Gebr. Stegemann	Halle	Air compressors and pumps.		
Alw. Taatz AG.	Halle	Dredgers.		
Gustav Taeschner	Halle	Brickyard installations: rolling mills for ceramic industry.		
Thiem & Töwe	Halle	Attrition mills; crushing plants and machinery		
Wegelin & Hübner AG.	Halle	Complete plant for rayon products, Steam engines, pumps of all kinds, compressors, refrigeration plant, distilling equipment. Chemical industry plant.	Foundry, own power station. Plant electrified	Important
Weise & Monski	Halle	Piston pumps.		
Weise Söhne	Halle	Pumps of various types. Steam turbines.		

TABLE 27 (Cont'd)

Firm or Owner	Location	Production and Capacity	Equipment & Facilities	Remarks
Maschinenfabrik Paschen Ag.	Köthen	Conveyor equipment; elevators.	Has foundry.	
Linke-Hoffmann	Lauchhammer	Open hearth furnaces, electric furnaces, scrap bundling presses, ingot molds.		
Mitteldeutsche Stahlwerke AG. Lauchhammerwerke	Lauchhammer	Hammerhead cranes, dockyard slewing cranes, loading bridges, steel works cranes, overhead traveling cranes, **gantry** cranes. Lifts, belt conveyors, ore dressing plant, gears. Lattice transporters.	Has foundry.	Cap. RM 40,000,000 Important
Friedrich Krupp Grusonwerke AG.	Magdeburg-Buckau	Converters, non-ferrous rolling mills, blooming mills, cold rolling mills, plate mills, sheet mills, section mills, wire mills, rolls, live roller beds and tables, ingot manipulators, cooling beds, shears, furnaces, hydraulic **forging presses**, heavy presses. All standard types of cranes, overhead, hammerhead, and slewing. Specialize in **gantry** cranes, breakdown cranes, shipway cranes, cranes used in steel works. Heavy industrial elevators, lattice transporters, hoists, and lifts. Coal cleaning equipment, open pit mining equipment, dressing machines for ores, coal, coke, **mixing** machines for glass industry; machines for ceramic industry; cement mixers. Armored	Has open-hearth furnaces, electric furnaces, large foundry, forges, pressing plants. Large well-equipped plant, believed considerably expanded in recent years.	Most important. Reported employment as high as 35,000 workers.

TABLE 27 (CONT'D)

Firm or Owner	Location	Production and Capacity	Equipment & Facilities	Remarks
		plate, armored cars and tanks. Reported (1943) producing 50 medium tanks per mo., guns, ammunition, mine bodies, torpedoes,		
Georg Becker & Co.	Magdeburg-	Important manufacturer of chain or rope haulage equipment for mines. Conveyors, elevators, chutes, boiler stoking instruments.		
Griesemann & Co.	Magdeburg-Neustadt	Brickyard installations.		
A. W. Mackenson Maschinenfabrik u. Giesserei GmbH.	Magdeburg	Cableways and conveyors.		
Schäffer & Budenberg GmbH.	Magdeburg-Buckau	Various types of pumps.	Has foundry.	
Herwarth Thieme	Magdeburg-Neustadt	Winches and lifts.		
Emil Wieger	Magdeburg	Conveyor equipment.		
Maschinenfabrik Buckau R. Wolf AG.	Magdeburg-Buckau	Complete plant for briquetting works, quarrying, mining, dredging, sugar ind., chemical ind., locomobiles, tractors, pumps, etc. Reported producing medium tanks, Est. prod. (1941) 50 per mo.	Has supplementary power plant.	Estimated 3500 workers. Very important

TABLE 27 (Cont'd)

Firm or Owner	Location	Production and Capacity	Equipment & Facilities	Remarks
	Magdeburg-Salbke	Steam engines, boilers, locomobiles, pumps, Diesel engines, Reported partially employed on submarine components and components for heavy infantry weapons such as trench mortars.	Forges, foundry, power station.	Estimated 4,000 workers. Very important
Otto Gruson & Co. (subsidiary or Maschinenfabrik Buckau R. Wolf AG.	Magdeburg-Buckau	Steel fabricating works for structural and engineering purposes, gear wheels, special steel, etc. Source for Krupp of equipment for tanks and armored fighting vehicles.	Large foundry. Open hearth and electric furnaces.	Important
Wilh. Weigand KG	Merseburg	Jet apparatus.		
Th. Groke AG.	Merseburg	Brick machinery, crushers, hydraulic presses, machines for ceramic industry.		1935/36 50 employed.
H. Angers Söhne	Nordhausen	Deep well, plunger, and entrifugal pumps.		
Schmidt, Kranz & Co., Nordhauser Maschinenfabrik AG.	Nordhausen	Mining equipment, sluicing gates, lifts, scraping and shoveling plants.		550 workers, 2:206 Moderate importance.
Heymer & Pilz AG.	Meuselwitz	Coal conveyors, surface and underground, elevators, loading plants, briquetting presses, coal screening & drying plants.	Has foundry.	
G. Anton Seelemann & Söhne	Neustadt a. Orla	Concrete and Mortar mixers.		

TABLE 27 (Cont'd)

Firm or Owner	Location	Production and Capacity	Equipment & Facilities	Remarks
Tiefbau & Kälte Industrie AG.	Nordhausen	Boring machines and mining equipment.		
Maschinenfabrik Dorst AG.	Oberlind	Vacuum presses for ceramic industry.	Has foundry	
Maschinenfabrik Oddesse AG.	Oschersleben-Bode	Steam, centrifugal, boiler-feed, deep-well pumps.	Has foundry.	
August Meissmann Maschinenfabrik KG	Saalfeld	Ceramic manufacturing equipment.		
Carl Enke & Co.	Schkeuditz (nr Merseburg)	Centrifugal pumps.		
F. Dippe Maschinenfabrik AG.	Schladen	Pumps and compressors.		
Schöniger Maschinenfabrik GmbH.	Schöningen (s.e. Braunschweig)	Pneumatic conveying plants.		
C.H. Wermeer	Stassfurt	Conveyor worms, elevators.	Has foundry.	
Gengelbach & Naumann	Wittenberg	Water wheels		
A. Wetzig	Wittenberg	Water turbines.	HHas foundry.	
Zeitzer Eisengiesserei und Maschinenbau AG.	Zeitz	Equipment for brown coal industry, brick and ceramic industry, crushers, rolling mills	Power from grid.	1938 614 emp.
Fritz Kühnel	Zuelenroda	Electric suspension rr's. Brickworks plant.		

Presses, bending machines, punches, shears, welding and riveting machinery

Portable tools: power-operated hand tools such as electric or pneumatic drills, hand grinders, etc.

Excluded from this summary are processing and woodworking machinery, and heavy tools, such as rolling mills, steam hammers, or large presses, which fall within the classification of heavy industrial equipment.

The manufacture of metal-working equipment plays an important part in German industrial economy. These tools are vital in peace and war to the output of all engineering products, inasmuch as both armament and engineering industries require specialized metal-forming equipment for the manufacture of their products. From 1933 to 1939 Germany manufactured about 50 percent of the world's output of such tools (Table 28). These were used not only domestically, but formed the basis of a large and important export trade. Available figures on production are scanty but it is estimated that production in 1939 and during succeeding years of the war has been about 500,000 tons per annum. The total employment of the industry in 1936, as given by German sources, was almost 90,000.

ii. Regional basis. The Central German Industrial Region includes part of one of the important concentrations of the specialized metal-forming equipment industry in Germany. Its center is in Chemnitz and Leipzig, outside the Central Industrial Region, but the industry extends into the southern and southeastern portions of Thüringen and and into Provinz Sachsen. Here are numerous establishments -- most of them small -- making this type of equipment. These factories employ about 10 percent of all the workers in Germany engaged in the industry and represent an important region and national industrial development.

iii. Raw Materials. For raw materials the specialized metal-forming equipment industry of the region is dependent upon iron and special steels, most of which have to be transported from the steel-producing Ruhr-Rhineland region. Labor is a particularly important factor in the industry. inasmuch as an exceedingly high proportion (55-65 percent) of skilled labor is required. Under normal conditions the labor supply is adequate, but during the war labor has proved a difficult problem and the variety of machine tools manufactured has been sharply limited in order partially to simplify the processes of production.

iv. Conversion. Although certain plants have been converted in part to the production of arms and ammunition, the need for specialized metal-forming equipment itself for the armament and engineering industries has prevented large or widespread conversion. German efforts have been bent towards maximum production, and to this end types of tools have been simplified, and parts standardized as much as possible. Frequently it has been necessary to use lower grades of steel in their manufacture. Types of machinery in stock, not necessary for the war effort, have been scrapped and inefficient plants closed down or diverted to other types of work.

German efforts towards maximum production, however, will probably result in Germany finding herself overstocked with specialized metal-forming equipment with the return of a peacetime economy. The durability of most of these products removes the necessity for frequent replacement, in general, and manufacturers may find a considerably decreased market for this type of product after the conclusion of hostilities.

v. Locational Pattern. The largest concentration of machine tool manufacture in the Central Industrial Region occurs in Gera, on the Elster River in eastern Thüringen (Map No. 3245). The city has seven plants of considerable importance, and several smaller ones. Ruhla is also of particular importance, being the site of the Gebrüder Thiel works. Aschersleben, with Billeter & Klunz, and Halle, with Lange & Geilen, are also important centers of the machine tool industry. (Details on these and the other plants of the region are given in table 28.)

TABLE 28. CHIEF MANUFACTURERS OF SPECIALIZED METAL EQUIPMENT IN THE CENTRAL INDUSTRIAL REGION.

Firm or Owner	Location	Production and Capacity	Equipment & Facilities	Remarks
Wilh. Bach	Apolda	Slotting machines		
Billeter & Klunz	Aschersleben	Grinding and planing machines, hammers.		450-600 workers. Important
Wetzel, Maschinenfabrik und Eisengiesserei GmbH.	Aschersleben	Wire rope machines.		
Maschinenfabrik Salzungen Willy Prox	Bad Salzungen	Heavy presses, various types		100 workers
W. Paternoster vorm. A. Neumann	Bitterfeld	Machine tools		
Bormann, Fritz & Richard	Braunschweig	Watchmakers tools		
Heckner & CO.	Braunschweig	Circular band saws, planers drillers, lathes.		130 workers (1937)
Julius Klinghammer	Braunschweig	Sectioning, punching, drawing and embossing tools.		
Paul Homann	Dessau	Hydraulic presses; tube finishing machines.		
Anhalter Feilenfabrik AG.	Dessau	Files		

TABLE 28. (Cont'd)

Firm or Owner	Location	Production and Capacity	Equipment & Facilities	Remarks
Eisenacher Karosserie und Wagenfabrik GmbH.	Eisenach	Gas welding equipment.		
"Erma" B. Geipel GmbH.	Erfurt	Small surface grinders; cutting tools; precision tools, also small arms.		
Henry Pels & Co., AG.	Erfurt	Heavy presses; shears and punches		
Gebr. Dix	Gera	Twist drills		
Gebr. Harnisch	Gera	Drilling spindles, milling apparatus, clamping tools		
Friedrich W. Kupke	Gera	Drill chucks.		
Fr. Aug. Jahn AG.	Gera	Machine tools, grinding machines; cutting tools, drilling machines.		
Georg. Huhnholz	Gera	Precision tools, high-speed drilling machines.		
Kurt Hässner	Gera	Clamping tools		
Gebrüder Jacob	Gera	Lathe chucks		
Walter Kretschmer	Gera	Lathe and drill chucks.		
Müller-Bovo-Motorenbau GmbH.	Gera	Electric drilling, grinding and polishing machinery.		

TABLE 28. (Cont'd)

Firm or Owner	Location	Production and Capacity	Equipment & Facilities	Remarks.
Heinrich Leo	Gera	Machine tools, air compressors, storage tanks.	Has foundry	700 workers. Important
Metallwarenfabrik Bessler GmbH.	Gera	Grinding machines.		
Konrad Modroch	Gera	Bending machines, presses, shears.		
Moritz Barthel	Gera	Lathes and special chucks of all types, bending machines, punches, tube finishing machines.		125 workers (1938)
Pähler & Dittrich	Gera-Zwötzen	Drill chucks		
Gebr. Reinhold	Gera-Zwötzen	Multi-spindle drilling machines; drilling machines of various types, drill heads.	Has foundry.	300 workers
Paul Seifert	Gera	Lathe and drill chucks.		
R. Sonntag GmbH.	Gera	Straightening, folding, bending presses; shears.	Has foundry.	
Paul Tischendorf	Gera	Tube finishing machines		
Robt. Todt GmbH.	Gera	Hand drills & bench drilling machines		
Ernst Ullmann	Gera	Lathe chucks		
Gebr. Weissker	Gera-Zwötzen	Lathes, grinding machines.		

TABLE 28 (Con'td)

[illegible]	Location	Production and Capacity	Equipment and Facilities	Remarks
Wesselmann Bohrer Co., AG.	Gera-Zwötzen	Cutting tools of all types, drilling machines, twist drills, reamers.		170 workers (1938) Important.
Karl Wetzel	Gera	Boring, grinding, drilling, milling machines; other machine tools.	Has foundry	Important
Loos & Hempel, Gothaer Werkzeugmaschinenfabrik	Gotha-Ost	Multi-spindle drilling machines, tool grinding machines		4000 employees
Carl Grübel	Gotha	Tinsmith's machines; tube finishing machines		
Sempuco (Carl Semper & Co.)	Greiz	Engraving machines, marking machines, wire bending and working machinery, hammers, chain machines.	Has two works: I. Wire-working machinery, etc. II. Engraving machinery for precision work.	
Johannes Otto Spaleck	Greiz	Wire bending & working machines		
Bader & Halbig	Halle	Tool grinding machines.		
Concordia Maschinenbau AG.	Halle	Thread cutting machines.		
Lange & Geilen	Halle	Machine tools. Specialize in automatic and hydraulic shaping machinery.		250 workers (1938) Important.

TABLE 28.(Cont'd)

Firm or Owner	Location	Production and Capacity	Equipment & Facilities	Remarks
Maschinenfabrik Albert Merz	Halle-Diemitz	Saws, drilling machines.		
Carl Zeiss	Jena	Precision measuring instruments for machine tools.		Important
Schulze & Neumann	Köthen	Plate shearing machines		Important 100 workers
Otto K. Bley	Magdeburg-Sudenburg	Grinding machines; straightening and bending presses		
Magdeburger Werkzeug-Maschinenfabrik GmbH.	Magdeburg-Neustadt	Auto multi-cut lathes, turret lathes, gunboring equipment, machinery for aircraft and propeller construction		Very Important. 1500 workers (1938)
Heymer & Pilz (now Meuselwitz Maschinenfabrik; part of Gustloff Werke)	Meuselwitz	Turret lathes, lathes of various types, slotters, grinding machines.	Has foundry.	Important 250 workers
Gebr. Spaleck	Mohlsdorf (nr.Greiz)	Wire bending machines.		
Schmidt & Gruhle	Mühlhausen	Tinsmith's machines	Has foundry	
C.W. Gehring	Naumburg	Grinding tools		
Emil Jäger	Neustadt a. Orla (n.w. Schleiz)	Various types of wire working machines.	Has foundry	
Alfred Anders	Ohrdruf	Tinsmith's machines.		

TABLE 28. (Cont'd)

Firm or Owner	Location	Production & Capacity	Equipment & Facilities	Remarks
Vogel & Co.	Pollwitz(nr.Greiz)	Hydraulic presses		
Walter Zeh	Possneck(n.w.Schleiz)	High-speed drilling machines		
Gebrüder Thiel GmbH.	Ruhla	Single-spindle bar autos, universal milling machines, tool shapers, filing machines, sawing machines, topping machines. Also, important watch factory. Reported now making instruments for aircraft and motor vehicles, time bombs, ammunition.	Plant: brick building, covers about 2-3 city blocks.	Very important. 3900 workers (1938)
Paul Auerbach	Saalfeld	Bending and grooving machines.		
Auerbach & Scheibe AG.	Saalfeld	Single, multi-spindle, and other types of drilling machines		3-400 workers
Franz Irmischer	Saalfeld	Grinding machines, sharpening machines, saws, wire working machinery.		
Sylbe & Pondorf AG.	Schmölln (e. Gera)	Drawing presses, machine tools for button manufacture.		
Franz Braun AG.	Zerbst	Large engine lathes, frontal lathes, other lathes, drilling machines, thermo-plastic molding presses.	Machine shop, iron foundry. 3 cupola furnaces, 1 Siemens-Martin furnace. Power from grid.	Very Important. 450 workers (1938)
Baumann & Falck GmbH.	Zeulenroda	Slicing and centering machines, high-speed lathes.		

TABLE 28. (Cont'd)

Firm or Owner	Location	Production and Capacity	Equipment and Facility	Remarks
Paul Blell	Zeulenroda	Planers, hydraulic broaching machines, presses		
Carl Kneusel	Zeulenroda	Presses of various types, shears, sheet-metal working machines, tinsmith's machines, special machine tools	Has foundry	
Adolf Lang	Zeulenroda	High-speed lathes; presses		
Elektroschmelze GmbH.	Zschenowitz	Abrasives.		Important.

4. Other Metal Working Industries

a. Introduction. The aircraft industry of the Central Industrial Region is the largest concentration of this type in Germany. Its main centers are in the Anhalt area, and in Magdeburg, Braunschweig, and Eisenach. The automotive industry of the region is also important, and Braunschweig and Fallersleben manufacture a large proportion of German trucks and motor vehicles (Map No. 3245).

The precision and optical industry in the Central Industrial Region is of great world and national importance. It is concentrated mainly in Jena, in Thüringen. Here are produced the majority of the optical instruments needed for the German army, navy, and air force, as well as precision instruments of vital importance to German war industry.

The Central Industrial Region is an important producer of various types of machinery for such activities as agriculture, the chemical industry, food processing, and textile manufacture. The manufacture of machinery is strongly conditioned by local markets. Agricultural machinery is produced for the farm lands of Provinz Sachsen and parts of Thüringen, while food processing machinery supplies the extensive food processing developments in Braunschweig and Magdeburg. The region is important in the German chemical industry, and hence machinery for this type of work is manufactured to a large extent, particularly in Provinz Sachsen. Machinery for the textile industry is produced near the primary textile region, in Thüringen. Numerous other types of machinery, as well, are produced in the Central Industrial Region, in plants scattered to a considerable degree over the area.

Demands of war have not only given rise to a medium-sized arms and ammunition industry in the Central Industrial Region, but have governed in varying degrees the conversion of plants to arms or war-important production, and the regulation of types of goods produced. In general, plants engaged before the war in manufacturing heavy industrial equipment maintain to a large degree their original types of production, for replacement and enlargement of war industries. In addition, they are occupied with the production of heavy armaments, tanks, armor plate, and the like. The machine tool industry adheres almost entirely to its regular lines of production, inasmuch as these tools are of basic importance in the construction of all types of machinery and equipment. Precision and optical equipment is to a large extent that needed by the armed forces and essential war industries. Some of the greatest changes have taken place in certain groups of miscellaneous machinery. The production of agricultural machinery has been heavily curtailed, with provision only for essential replacements, while textile machinery manufacture has been virtually prohibited. Also, the production of various miscellaneous types of machines and numerous metal consumers' goods has been restricted, and these factories turned over to the production of various types of small arms and ammunition.

b. Aircraft and Automotive Industries

i. Importance. The German aircraft and automotive industries have been developed by the Nazis since 1933 to their present high importance. It is estimated that the Central Industrial Region currently (April 1944) fills about one-fourth of Germany's aircraft requirements and in 1943 filled more than half of its heavy truck and light passenger-car requirements. In 1933 there were a few aircraft and automotive plants scattered throughout the region. At present, there is hardly a city in the Braunschweig-Magdeburg-Halle triangle which does not have an aircraft or an automotive plant (Map 3245 and Table 29). The population of these towns has increased rapidly, e.g., Aschersleben whose population increased more than 40 percent in the last few years. South of the Volkswagen works near Fallersleben a new city has been under construction since before the war.

ii. Conversion. The automotive and aero-engine plants could to a large extent be converted to peacetime production of cars, trucks, etc. However, wartime wear and tear on machine tools may necessitate extensive retooling. The plants manufacturing and assembling aircraft fuselages will not be so easily converted.

iii. Location and Organization. The automotive factories are concentrated in three centers, Braunschweig, Eisenach, and Fallersleben. The industry at Braunschweig and Eisenach dates to the pre-Hitler era and has been enlarged since 1933, while Fallersleben's importance is of recent date. Tank production is concentrated in Braunschweig and Magdeburg. Braunschweig, Fallersleben, and Magdeburg all have excellent inland waterway connections.

The motor industry in pre-Hitler Germany was not, generally speaking, developed along modern mass-production lines. Since 1933 and especially since 1942, the demands of the German military economy have caused a marked change in production methods. The enormous wastage of cars and tanks in modern warfare, Germany's shortage of skilled labor and machinery, and the necessity of geographical dispersion as a defense against air attack have all been instrumental in the rapid modernization of the German motor industry. Types of motor vehicles have been limited, parts standardized, less efficient plants closed or converted, and factories forced to specialize in one type or process only.

The aircraft industry of the Central Industrial Region is organized in various groups of plants, each group being coordinated for the production of one make of plane. This system goes back to pre-war times, but it was perfected in 1942 when organization of the entire industry was made compulsory by law.

The largest and most important aircraft group in the Central Industrial Region is the Junkers complex. Its production center is the assembly plant at Bernburg, around which, in a radius of not more than thirty-five miles, the components manufacturing plants are located. Cities supplying component parts to Bernburg include (1) Aschersleben, which produces fuselages and obtains in turn its component parts from Dessau; (2) Leopoldshall, which manufactures surfaces and tail units; (3) Halberstadt, which specializes on wings; (4) Köthen and (5) Magdeburg, making engines and propellers, and (6) Schönebeck, producing minor components. Dessau is the seat of the planning and experimental departments of the Junkers complex, and a variety of airplane parts are produced here.

The same type of organization, in a less complex form, applies to the less important concerns. The Siebel complex also produces Junkers-type aircraft in its plants at Halle and Schkeuditz, and may be collaborating with the production of the main Junkers complex. The Mühlenbau und Industrie AG group has two plants in and near Braunschweig producing Messerschmitt types. Gothaer Waggonfabrik also produces Messerschmitt types in its Gotha plant and probably receives parts from its Ilmenau plant, south of the Central Industrial Region. The small AGO group makes Focke-Wolf aircraft at Oschersleben and receives minor components from its near-by Bleiche factory. Büssing at Braunschweig and Bayerische Motorenwerke at Eisenach, not connected with regional groups, produce aero-engines.

iv. Production. In 1942 the Central Industrial Region produced 3,000 two-wheel drive and 3,500 four-wheel drive trucks, 9,500 light passenger cars, and perhaps 1,000 medium passenger cars. By 1943 light passenger car production had increased to an annual rate of 15,000. Reports indicate the probability of amphibious light cars of the Volkswagen type being manufactured in the region. At least 10 percent of all German tanks produced in recent years were assembled within the Central Industrial Region.

In January 1944 the region was estimated to contribute about one-half of the single-engine fighter planes, about three-fourths of twin-engine fighter planes, and about one-fourth of long-range bombers manufactured for the Luftwaffe. It is believed that this distribution is changing and that the production of single-engine fighters has increased greatly.

v. Raw Materials and Transportation. The motor industry of the Central Industrial Region obtains a large proportion of its light metal requirements from local plants, especially Bitterfeld. Other metal needs also are partially filled locally. There is no independent, large industry specializing in the manufacture of auxiliary equipment for the motor industry located in the Central Industrial Region. The industry is to a large extent dependent on outside raw materials and components. The transport facilities of the Central Industrial Region are of great importance to the automotive and aircraft industries. The Junkers complex depends on the well-developed rail and road connections between the various cities for the flow of components to its assembly plant at Bernburg. The Volkswagen plant is located directly on the Mittelland Canal and Braunschweig, which is connected with the same canal, has developed into an important center of the motor industry. Most of the newly-developed motor plants had to draw on labor from outside the region and much forced labor is employed. The shortage of skilled labor has had a decided influence on production methods and has furthered the general trend towards mass production.

vi. Special Problem. A special problem is presented by the Volkswagen plant at Fallersleben. The construction of this factory was promoted by the Nazis under a scheme by which installment payments on a low-priced car, the People's Car or Volkswagen, were collected in advance from workers all over Germany. By 1939 the plant had not delivered a single car to its subscribers, and neither the plant nor the new city which was to be built near it have been completed. Construction of the factory was, however, far advanced and, instead of producing the People's Car, it is now engaged in manufacturing a military equivalent for the German army. So far as known, none of the subscribers has been reimbursed or paid any interest on his investments.

Table 29. AIRCRAFT AND AUTOMOTIVE PLANTS IN THE CENTRAL INDUSTRIAL REGION

Firm & Name of Unit	Location	Production & Capacity	Equipment & Facilities	Remarks
Junkers Flugzeug-und Motorenwerke AG Component factory	Aschersleben Provinz Sachsen	Fuselages for Bernburg assembly plant. Construction & assembly of major components for Ju 52's and Ju 88's. In spring of 1941 produced 21 Ju 88 fuselages per week.	Dessau factory supplies majority of raw materials & accessories. Has road & rail transport to Bernburg.	Originally planned as producer of completed aircraft but since 1937 concentrated on fuselages for Bernburg. In 1941 employed about 6-7,000 workers.
Assembly factory	Bernburg, Anhalt	Up to February 1944 assembled about 110 Ju 88's & Ju 188's per month.	Final operations, such as fitting of instruments, often carried on in the open outside the main assembly shops.	In 1941 labor was estimated at about 4,000 workers. There is an apprentice school for foreigners.
1. Parent works of Junkers Organization 2. Aero-engine factory 3. Component factory	Dessau 1. On Dessau aerodrome 2. Adjacent to aerodrome & railway station, Alten 3. Between Dessau & Törten	1. Design, development, repair, and modification of all Ju types of service and civil aircraft. About 60 Ju 88's per month. 2. Oct. 1941 production: 100 Jumo 205's & 100 Jumo 211's. Development of gas injection & diesel engines. 3. Components for main works, variable pitch propellers, fuel injection pumps, etc.	1. Acts as general depot for distribution of supplies to Junkers component factories. 2. 53 engine test.	1. Employs 15,000 (?) workers. School for 1,400 apprentices, 800 of which live in company barracks.

Table 29 (cont'd)

Firm & Name of Unit	Location	Production & Capacity	Equipment & Facilities	Remarks
1. Component factory 2. Halberstaedter Maschinenfabrik (probably controlled by Junkers)	Halberstadt	1. July 1941 production: 21 sets of Ju 88 wings per week for Bernburg assembly plant. 2. Aero-engine production reported but not likely.	1. Since 1938 the activity at Halberstadt has been teamed with that at Aschersleben & the lines manufactured by both firms have been similar in type and quality.	1. In summer 1941 employed 4,500 workers including foreigners. 2. In 1943 about 5,000 workers.
Flugzeugreparaturwerk Erfurt	Erfurt	Aircraft & engine repair.		
Aero-engine factory	Köthen	Summer 1941 production: total output of all types averaged 20 engines per day. (Jumo 211)		About 6,000 workers including a large number of foreigners.
Aero-engine factory (further confirmation needed)	Naumburg	Construction & repair of aero-engines		3,000 workers (70 % women)
Junkers Flugzeug-und Motorenwerke AG Aero-engine factory	Magdeburg, Neustadt (2 mi. south of Magdeburg)	Jan. 1943 estimated prod. 300 Jumo 211's per month 1500 injection pumps per month.	Surplus of injection pumps sent to other Junkers factories.	Estimated 10,000 (?) workers in 1942.
Component factory	Schönebeck (9 mi. south of center of Magdeburg)	Airframe components	5 large workshops	Number of workers unknown.
Component factory	Leopoldshall (nr. Stassfurt)	Tail units for assembly at Bernburg.		2,000 to 3,000 workers.

Table 29 (cont'd)

Firm & Name of Unit	Location	Production & Capacity	Equipment & Facilities	Remarks
Ago Flugzeugwerke	Oschersleben d. Bode (1 mi. east of town)	Output prior to 11 Jan. 1944 attack was estimated at over 100 FW 190's per month.	More than 3 assembly shops; 2 component erecting shops; 2 machine shops.	Excellent road & rail connections. From 1943 reported to employ 6,000 workers. Boiler house at factory for power supply. 1,000 workers.
AGO	Bleiche 10 mi. NW Magdeburg	Component parts		1,000 workers.
Siebel Flugzeugwerke GmbH. (formerly Flugzeugwerk Halle)				
Assembly factory	Halle, north of town, on aerodrome	35 to 70 Ju 88's per month in Jan. 1943. Also mfgs. wings for Schkeuditz plant.		Almost 4,000 workers in 1942 now probably doubled.
Component factory	Schkeuditz (between Halle & Leipzig)	In Aug. 1942 6-10 wings per day for Ju 88's		
Gothaer Waggenfabrik AG		75 Me 110's Nov. 1943 assembly of 65 Me 410's per month Mar. 1944. Produces heavy gun carriages.		Works connected by rail to the Gotha Süd station, south of the factory. 1941: 2,200 workers. Probably receives components from Ilmenau factory.

Table 29 (cont'd)

Firm & Name of Unit	Location	Production & Capacity	Equipment & Facilities	Remarks
Bayerische Motorenwerke AG	Eisenach	In 1943 200 BMW 132 air-cooled aero-engines per month. Armored cars and carriers.	3 large and one medium size workshop	1. About 6,000 workers in 1943.
B.M.W. Flugmotorenfabrik Eisenach, GmbH	1. Within Eisenach 2. Stockhausen			2. Est. at 4,500 workers in 1940.
1. Aero-engine factory 2. Aero-engine factory				
Büssing - NAG Niedersachsische Motorenwerke, GmbH (under control of Büssing - NAG) Aero-engine factory	Querum, near Braunschweig	Sept. 1942: 250 DB 601's per month (now DB 605).		
Büssing - NAG Vereinigte Nutzkraftwagen AG	Braunschweig	Artillery tractors, gas & diesel engines components, gear boxes, axles, clutches, etc.		1,500 workers in 1943.
Pantherwerke AG	Braunschweig, Ludwigstrasse	Motorcycles (& bicycles)		
Miag (Mühlenbau und Industrie AG	Waggum and Bienrode, near Braunschweig	Mar. 1944: 55 Me 110's per month.	Receives components from Wilhelmitor in vicinity of Braunschweig & probably some from Gotha.	
Assembly factory				
Component factory	Wilhelmitor, Braunschweig	Airframe components for Querum & Waggum		Reported in 1942 to have 2,000 workers including those at Waggum.

Table 29 (cont'd)

Firm & Name of Unit	Location	Production & Capacity	Equipment & Facilities	Remarks
Volkswagen Werke GmbH	Fallersleben	800-1200 per month 1943 month 1943 military models of Volkswagen		Estimated staff of 17,000 workers, including 2,000 office workers in August 1943.
Flugzeug reparaturfabrik GmbH	Braunschweig, Zimmer Strasse			Employed only 100 workers in 1938 but was so equipped that it could be converted to large scale production. It is now probably working at full capacity employing several hundred workers.
Fired. Krupp Grusonwerke AG	Magdeburg, Buckau	Armored cars.		
Maschinenfabrik Buckau R. Wolf AG	Magdeburg, Salbke	Diesel engines, automobile components.		4,000 workers.
Berlin Suhler Waffen & Fahrzeugwerke (Fritz Sauckel Werke)	Weimar-Nord near main railway station.			6,000 workers.

c. Precision and Optical Instruments and Optical Glass. The manufacture of precision and optical instruments demands scientific talent and skilled labor coupled with highly specialized plant and equipment. The products of this industry are varied, but may be classified roughly as follows:

Optical Instruments
- Telescopes and periscopes
- Binoculars
- Laboratory research and test instruments, including metallographs, polarimeters, photometers, refractometers, spectrometers and spectroscopes, and photomicrographic apparatus
- Magnifying instruments
- Optical elements and assemblies, including lenses, objectives, polarizers, and prisms
- Gun and bomb sights

Precision Indicating, Recording and Controlling Instruments
- Temperature and hydrometric instruments, including thermometers, pyrometers, and heating controls
- Electric quantity instruments, including voltmeters, ammeters, wattmeters, frequency meters, and ohmmeters
- Pressure-measuring instruments
- Flow and liquid level instruments, including gas meters, water meters, anemometers, and area flow meters
- Mechanical motion measuring instruments, including tachometers, timing controls, and cycle controls
- Aircraft engine and flight instruments, including automatic pilots, directional gyroscopes, compasses, and navigation instruments

The Central Industrial Region includes one of the most important concentrations of the German precision and optical industry (Table 30). In 1936 the region employed about 12,000 workers out of a German total of 75,000 for the industry. Almost all of this development is located in Thüringen, particularly in the town of Jena (Map No. 3245).

The firm of Carl Zeiss in Jena occupies the foremost position not only in Germany, but in the world, in the manufacture of high-quality optical and precision instruments. Its scientific staff represents an accumulation of the best technical talents in Germany, and its labor force is a highly skilled group with a background of long apprenticeship. The world leadership of Zeiss before the war was strengthened by various cartel agreements, and its technical superiority was such that

American optical instruments, now made by Bausch and Lomb, are copies of designs perfected by Zeiss. The firm, whose employment is now estimated to have grown from 9,000 to about 18,000, is the principal source of optical instruments for German military, naval, and aircraft use. In addition, it produces optical and precision instruments, such as photographic equipment, spectrographs, colorimeters, and micrometers for chemical, metallurgical, and mechanical industries.

The Zeiss organization is closely allied with the University of Jena. The University obtains its principal financial support from Zeiss, and many members of the Zeiss technical staff teach at the University. In addition, research work is carried on for Zeiss by professors and graduate students of the University. The Institute of Technical Physics and the Chemical Institute of the University, are closely linked to Zeiss. Zeiss has established a school for military opticians, where specially chosen members of the German army and navy are trained in the handling of optical instruments. This school also carries on certain special research projects for Zeiss.

The optical glass firm of Schott und Genossen, located in Jena not far from the Zeiss works, is closely allied to the Carl Zeiss organization. Schott, by far the most important of the few European producers of optical glass, is the source of the glass used by Zeiss. Moreover, the two companies are linked by the provisions of the Zeiss Foundation. Under these, both Zeiss and Schott properties are governed by the Foundation, managed by a self-perpetuating board of four governors. The chairman of this board is appointed by the chief of the Thuringian government.

These two plants, now busy supplying military demands and the needs of war industries, will be of continuing importance after the war. Their products are of a type necessary to peacetime economy as well as that of war, and the technical knowledge of the staffs of these companies is of more than regional or national importance.

There are several other plants in the Central Industrial Region which produce optical and precision equipment, such as Voigtländer & Sohn AG in Braunschweig and Schäffer & Budenberg GmbH in Magdeburg. Although worthy of note, their importance is small in comparison to that of Zeiss. Details of these plants, together with Zeiss and Schott and several small firms in the Central Industrial Region, are given in Table 30.

d. Miscellaneous Metal Industries.

i. Introduction. In addition to the specific industries already mentioned, the Central Industrial Region includes a large number and variety of plants which produce a diversity of types of machinery and equipment (Map No. 3245). These may be subdivided into the following classifications: (1) agricultural machinery, (2) machinery for the textile industry, (3) machinery and equipment for the chemical industry, (4) food processing machinery and equipment, and (5) miscellaneous machinery and metal products.

The locally mined brown coal provides a power basis, as in the case of other metal working industries in the Central Industrial Region. It is believed that in spite of the development of local iron ores, the region is still dependent upon western Germany for better-grade iron and steel. Local resources of copper, lead, and zinc are also used to some extent, but it is not known how fully they supply the needs of the region. One of the greatest assets is a readily available supply of skilled labor. This is particularly important in view of the many highly specialized types of machines which are produced.

TABLE 30. MANUFACTURERS OF PRECISION AND OPTICAL INSTRUMENTS IN THE CENTRAL INDUSTRIAL REGION

Firm or owner	Location	Production & Capacity	Equipment & Facilities	Remarks
Siemens & Halske	Arnstadt	Precision instruments and components for precision apparatus.		
R. Reiss GmbH	Bad Liebenwerda	Mathematical instruments		
Franke u. Heidecke	Braunschweig	Photographic apparatus.		500 workers.
Voigtländer & Sohn AG (controlled by Schering AG)	Braunschweig	Photographic apparatus; optical and other precision instruments; bomb sights; AA gun sights, etc.	Electric power supplied from regional network	About 1000 workers.
Franz Hering	Jena	Laboratory equipment.		Several hundred workers
Gerhard Heydrich	Jena	Finishers of glass for optical & scientific purposes		Several hundred workers
Schott und Genossen	Jena	Raw and finished optical glass; chemical glass; laboratory & specialty glass.	Large melting and annealing furnaces. Excellent technical staff.	Only producer of optical glass in Germany. Of highest importance.

TABLE 30. (Cont'd)

Firm or owner	Location	Production & Capacity	Equipment & Facilities	Remarks
Carl Zeiss	Jena	Prismatic binoculars, telescopes, periscopes, compasses, instruments for submarines and naval vessels; altimeters, army and navy range finders, stereographic aerial cameras and automatic film wrapping cameras; bomb sights; and other types of military and naval instruments. Optical elements and parts; spectographs, colorimeters, refractometers, measuring instruments, etc.	Has own power plant. Buildings cover better part of 2 city blocks.	9000 workers in 1939. Estimated to have doubled during war. Of highest importance.
J. Bundschuh GmbH	Magdeburg	Tachometers		
Schäffer & Budenberg GmbH	Magdeburg	Speed indicators, manometers, gauges, thermometers.		
Deutsche Thermometerfabrik Baecker & Spengler	Quedlinburg	Pyrometers, thermographs		
Wegener & Mach GmbH	Quedlinburg	Pyrometers, thermographs.		

ii. Agricultural Machinery. The machinery used in farming may be classified under several general headings:

Tractors, internal combustion, and steam.

Cultivating machinery: manure spreaders, rollers, harrows, cultivators, plows, etc.

Sowing and harvesting machines: threshing machines, reapers and binders, seed-cleaning machines, mowing and swathing machines, etc.

Barn equipment: straw and forage presses, chaff cutters, grain crushers, and cake crushers.

Dairy farm machinery.

Agriculture, employing nearly 14 percent of the working population of the Central Industrial Region, is a major industry in this region. Although many of the farms, especially in the regions near the Harz Mountains and the Thüringerwald, are small and little mechanized, the larger farms in the lower and flatter lands of Provinz Sachsen and Thüringen were before the war becoming increasingly mechanized. In addition, the cooperative use of farm machinery, where several farmers make use of one piece of equipment, has been introduced during the war. In general, however, in spite of wartime agricultural needs, mechanization has not been widespread.

In the Central Industrial Region there are numerous plants which provide machinery for the farms of the region, but most of them are not large (Table 31). The manufacture of agricultural machinery in 1936 in the region accounted for somewhat less than 3,000 workers out of a German total of over 37,000 engaged in this type of work.

During the war, conversion of the productive capacity of these plants has been effected to as high a degree as possible. The manufacture of agricultural machines has been cut to the barest minimum necessary for replacement

TABLE 31. CHIEF MANUFACTURERS OF AGRICULTURAL MACHINERY IN THE CENTRAL INDUSTRIAL REGION

Firm or owner	Location	Production and Capacity	Equipment & Facilities	Remarks
Gottfried Linder	Ammendorf (nr. Halle)	Cultivating, sowing, cropping machines. Now reported also making bodies for commercial vehicles and buses.		About 2000 workers. (1943)
Eisenwerk Brünner AG.	Artern	Agricultural machinery.		
Kyffhäuserhütte	Artern	Cultivators, various agricultural implements.		
Theodor Hey, GmbH.	Bernburg	Harrows, root cutters.		
W. Siedersleben & Co.	Bernburg	Seed drilling, hoeing machines; various agricultural implements	Has foundry	
Büssing NAG Vereinigte Nutz-Kraftwagen AG.	Braunschweig	Agricultural and industrial tractors; all wheeled type.	cf. "heavy machinery"	
Mühlenbau und Industrie AG. "Miag" (Maschinenfabrik & Mühlenbauanstalt G. Luther AG.)	Braunschweig	Grain handling, milling & crushing machinery. Producer gas tractors. cf. "Heavy machinery".	cf. "heavy machinery"	
Dingelstädter Maschinenfabrik Weigerich & Co.	Dingelstädt	Bruising, crushing, grinding mills.	Has foundry.	

TABLE 31 (Cont'd)

Firm or Owner	Location	Production and Capacity	Equipment & Facilities	Remarks
Georg Ad. Meister & Co.	Dingelstädt	Bruising, crushing, grinding mills.		
Wilhelm Brylla	Erfurt	Agricultural blowers.		
Reinhold Matthiess	Erfurt	Tractors.		
J.A. Topf & Söhne	Erfurt	Grain cleaning machines. Silos		
A. Heucke	Gatersleben	Agricultural engineers; steam ploughs.	Has foundry.	
Albin Fuchs	Gera	Threshing machines.		
Scharfenberg & Hartwig AG.	Gotha	Agricultural machines.		
Fr. Dehne K.G.	Halberstadt	Cultivators, seed drilling machines, chaff cutting machines, manure spreaders.	Has foundry.	
Gustav Drescher	Halle	Seed cleaners, plant & tree sprayers, turnip leaf washing machines, manure spreaders.	Has foundry.	
Wilhelm Jager K.G.	Halle	Seed cleaners. Silos		
Gustav Reissig	Halle	Agricultural blowers.		
Steigerwald & Uthardt	Jena	Fodder steamers.		

TABLE 31. (Cont'd)

Firm or Owner	Location	Production and Capacity	Equipment & Facilties	Remarks
Maschinenbau Langenberg	Langenberg (n.w. Gera)	Mowing machines.		
Paul Behrens	Magdeburg	Agricultural machinery.		
Hermann Hoppe	Magdeburg	Turnip leaf washing machines.		
Friedrich Krupp Grusonwerke AG.	Magdeburg-Buckau	Combines, theshers, cultivators, sowers, manure distributors, binders & reapers, ploughs, mowers, cake crushers.	See "Heavy Machinery"	See "Heavy Machinery" Important.
Karl Preiss	Magdeburg	Agricultural drying plants.		
Maschinenfabrik Buckau R. Wolf	Magdeburg-Buckau	Combines, threshers, cultivators, sowers, manure distributors, harrows, binders & reapers, elevators, plows, croppers, forage presses, chaff cutters, grain crushers. Important manufacturer of steam ploughing equipment.	See "Heavy Machinery"	See "Heavy Machiney" Important.
Propella-Regenanlager, Feddersen K.G.	Magdeburg	Agricultural sprinkling plants.		
Nomag, Schmidt, Kranz & Co. GmbH.	Nordhausen	Tractors - 20 h.p. Dieselengine		
Rud. Hartwig	Rudolstadt	Agricultural grinding machines.		

TABLE 31 (Cont'd)

Firm or Owner	Location	Production and Capacity	Equipment & Facilities	Remarks
Ahrens & Boda	Schöningen (s.e. Braunschweig)	Butter churns.		
Alfred Th. Hey	Schöningen	Hoeing machines.		
Schöniger Maschinenfabrik GmbH.	Schöningen	Silos, etc.		
Wilhelm Schreiber	Stendal	Agricultural machinery		
Berlin-Suhler Waffen und Fahrzeugwerke GmbH. Fritz Sauckel Werk	Weimar	Field & soil cutters.		
Gebr. Welger	Wolfenbüttel	Agricultural machinery; hay and straw presses.		
Gebr. Röber GmbH.	Wutha (s.e. of Eisenach)	Seed cleaning machines; farm implements.		1000 workers.

purposes. In addition, types of machinery have been severely limited and standardized in order to effect economies of production. In general, conversion of these factories has been directed towards the manufacture of war goods with the least possible need for retooling of the plant.

Most of the agricultural machinery producers of the Central Industrial Region are located in Provinz Sachsen. Some of the largest manufacturers are plants which specialize in many types of machinery and industrial equipment: Friedrich Krupp Grusonwerke AG and Maschinenfabrik Buckau R.Wolf AG of Magdeburg, and Büssing NAG Vereinigte Nutzkraftwagen AG and Mühlenbau und Industrie AG of Braunschweig. Magdeburg, with several other smaller plants, is the center of production of agricultural machinery, while other concentrations are located in or near Halle, Schöningen, Bernburg, and Artern. Details of these and other plants are given in table 31.

iii. Machinery for the Textile Industry. Textile machinery is in general of complicated design and requires highly specialized production processes. There are four main types of machinery for the manufacture of cloth: (1) machines for the preparatory processing of fiber, (2) spinning machines, (3) weaving machines, (4) machines for the final finishing of material. To these may be added a fifth category, that of machines, especially sewing machines, for the manufacture of cloth goods.

The Central Industrial Region lies upon the periphery of the great German textile industrial region in Land Sachsen and, moreover, is considerably removed from the second great textile center in the Rhine-Ruhr region. Hence its textile industry is small in comparison with these, although still large enough to be of importance within the region. The manufacture of machinery for the textile industry follows closely this regional distribution, with 40 percent of German production in Land Sachsen, 30 percent in the Rhine-Ruhr region, and remainder divided among the Central Industrial Region, Berlin, and the upper Rhine valley. In 1936 employment in the textile machinery industry of the Central Industrial Region was slightly over 10 percent of the German total for this industry.

Restrictions on the manufacture of machinery for the textile industry are among the most severe in wartime Germany. Since 1942 the manufacture of textile machinery has been virtually prohibited, except in limited amounts for export purposes. Although specific information is difficult to obtain, it may be assumed that widespread conversion to wartime products such as machine tools or small arms has been the rule in this industry. Because of the strict limitations upon textiles and textile machinery manufacture in Germany, the return of peace will bring with it the acute need for rapid reconversion of these industries.

The manufacture of textile machinery in the Central Industrial Region is concentrated mainly in Thüringen, the chief centers being Gera, Greiz, Apolda, and Altenburg. Details on specific plants are given in table 32,

iv. Machinery and Equipment for the Chemical Industry. Not only are machinery and equipment for the chemical industry of many types and varieties, but they must be constructed to withstand certain unusual conditions not met with in other types of industrial work, such as extremes of heat and cold, and contact with highly corrosive substances. The different types of machinery used in the chemical industry are summarized below:

Storage equipment: for solids -- dumps, hoppers, bins; for liquids -- vats, tanks, and receivers, usually requiring special non-corrosive linings; for gases -- tanks.

TABLE 32. CHIEF MANUFACTURERS OF MACHINERY FOR THE TEXTILE INDUSTRY IN THE CENTRAL INDUSTRIAL REGION

Firm or Owner	Location	Production and Capacity	Equipment & Facilities	Remarks
L. O. Dietrich Vesta Nähmaschinen-Werk	Altenburg	Industrial and home sewing machines	Has foundry	Important
Hermann Kohler AG	Altenburg	Industrial and home sewing machines		
Gustav Winselmann GmbH	Altenburg	Industrial and home sewing machines		
Wilh. Bach	Apolda	Raschel looms		
Wilhelm Barfuss	Apolda	Raschel looms, stocking frames		
August Förster	Apolda	Raschel looms, and weaving machines		
Bruno Knobloch	Apolda	Raschel looms		
Aug. Zimmermann	Burg	Small spinning machines; machines for production of cotton wool; cutting machines for rayon textile waste		
August Wallmeyer	Eisenach	Picking machines, horsehair spinning and twisting machines, twining machines, doubling, twisting, and doubling winding machines	Has foundry	Important
Gebr. Heinrich	Elsterwerda	Weaving machinery and accessories, special types of looms, auxiliary textile machines		
Gebr. Dix AG	Gera	Industrial sewing machines		

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Table 32. Chief Manufacturers of Machinery for the Textile Industry in the Central Industrial Region (Cont'd)

Firm or Owner	Location	Production and Capacity	Equipment & Facilities	Remarks
Friedrich Erdmann	Gera	Mechanical looms, Jacquard machines		
Gebr. Harnisch	Gera	Accessories and parts for spinning machines, weaving shuttles		
Moritz Jahr AG	Gera-Liebschwitz	Special machinery for textile and chemical industry		800 workers
M. Rudolf Jahr KG	Gera	Finishing machines; dyeing, drying machines		
Gebrüder Jakob	Gera	Industrial sewing machines		
Hermann Grosse	Greiz	Jacquard card binding and punching machines; Jacquard frames	Has foundry	
Oskar Schleicher	Greiz	Jacquard card punching machines, Jacquard frames, weaving dobbies	Has foundry	
Max Spaleck	Greiz	Warp beams and other types of textile equipment		
Werler & Steinert	Greiz	Looms for silk and wool; weaving machine accessories		
Wegelin & Hübner AG	Halle	Rayon production and working machines	Has foundry	Important
Mundlos AG	Magdeburg-Neustadt	Industrial and home sewing machines; accessories and parts		

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Table 32. Chief Manufacturers of Machinery for the Textile Industry in the Central Industrial Region (cont'd)

Firm or Owner	Location	Production and Capacity	Equipment & Facilities	Remarks
Gebrüder Spaleck	Mohlsdorf (nr. Greiz)	Reed machines		
Claes & Co. KG	Mühlhausen	Hand and power driven knitting machines; sewing machines		
Joh. M. Rockelmann	Mühlhausen	Knitting machine accessories		
Thüringische Maschinen- und Fahrrad Fabrik Walter & Co.	Mühlhausen	Hand and power driven knitting machines		
Emil Jäger	Neustadt a. Orla	Reed machines		
G. Anton Seelemann & Sohne	Neustadt a. Orla	Carding and spinning machines		
Julius Fischer	Nordhausen	Cloth printing machines		

Handling equipment: for solids -- cranes, hoists, lifts, conveyors, etc.; for liquids -- pumps; for gases -- fans, compressors, vacuum pumps.

Preparation equipment: crushing, grinding, and screening machines.

Reaction equipment: various types of containers, with agitation equipment.

Separating equipment: using processes of (a) sedimentation, (b) filtration, (c) evaporation, (d) drying, (e) crystallizing, or (f) distillation and rectification.

Electro-chemical equipment: electro-thermic or electrolytic.

The Central Industrial Region, together with the Ruhr and Frankfurt areas, is one of the principal centers of the chemical industry in Germany (Map No. 3245). Likewise, the Central Industrial Region is an important producer of machinery and equipment for this industry. Although German statistics are not subdivided in such a manner that accurate figures may be obtained for this type of manufacture, it is clear that the Central Industrial Region ranks in importance with the Rhine-Ruhr Region in the production of chemical equipment. The importance of the chemical industry in German war economy has furthered the continued production of equipment during the war. The fate of the manufacture of chemical equipment after the war will depend to a large extent upon what policies are adopted regarding Germany's chemical industry.

Most of the manufacturers of equipment for the chemical industry of the Central Industrial Region are found in Provinz Sachsen. Some of the most important are Wilke-Werke AG and Braunschweigische Machinenbauanstalt at Braunschweig; and Wegelin und Hübner, and A.L.G.Dehne, Halle; Eisen- und Huttenwerke Thale AG, Thale; Mako Maschinen Co. GmbH, Erfurt;

Friedrich Krupp Grusonwerk AG, Magdeburg; "Mabag" Maschinen- und Apparatebau AG, Nordhausen; and Maschinenfabrik Sangerhausen AG, Sangerhausen. Details on these and other plants of the region are given in table 33.

v. Food Processing Machinery and Equipment. Various types of machinery are required for the food processing industry, including such major divisions as

(1) Grinding and milling machinery
(2) Machinery for the production of edible oils and fats
(3) Sugar refining machinery
(4) Preserving and canning equipment
(5) Baking machinery
(6) Brewery installations
(7) Distilling equipment

The manufacture of equipment for the food processing industry in the Central Industrial Region is one of the best examples of the production of machinery near the centers in which it is used. Food processing is an important industry in the region. Likewise, the manufacture of machinery for food processing is important in the Central Industrial Region and prominent in Germany, employing about 9 percent of the 27,896 German workers engaged in this industry in 1936 (Map No. 3245).

The regional basis of the food processing machinery industry may most clearly be seen through two examples of correlation with the types of food processing of the Central Industrial Region. Braunschweig, which is the most important canning center of Germany, has a number of plants for the manufacture of canning machinery and tin cans. In Magdeburg in the sugar beet area, are several producers of equipment for sugar refining. Machinery of this type is also produced at Braunschweig, Halle, Köthen, Sangerhausen, Stassfurt, and Wolfenbüttel. Halle, moreover, is important for its numerous manufacturers of bakery equipment. Details on these and other plants are given in table 34.

TABLE 33. CHIEF MANUFACTURERS OF MACHINERY AND EQUIPMENT FOR THE CHEMICAL INDUSTRY IN THE CENTRAL INDUSTRIAL REGION

Firm or Owner	Location	Production and Capacity	Equipment & Facilities	Remarks
Sächs-Anh. Armaturenfabrik & Metallwerke AG	Bernburg	Machinery for chemical industry	Has foundry	About 140 workers (1937)
Braunschweigische Maschinenbauanstalt	Braunschweig	Machines and apparatus for making spirits, chemicals, and starches. Drying plant for chemicals and sugar	Has foundry	Important
Schönau & Frolich	Braunschweig	Apparatus for chemical industry		
David Schroll	Braunschweig	Apparatus for chemical industry		
Wilke-Werke AG	Braunschweig	Tanks and containers for all liquids, oil treatment and refining equipment, containers for gas, oil, water and acid, various types of equipment (principally heavy) for chemical industry	Complex plant area. Power station, steel shop, annealing furnace, welding shop, machine shops	Normal employment about 1,000. Very important.
Kaloriferwerk Hugo Junkers GmbH	Dessau	Heating and cooling plants for air and gases		
G. Polysius AG	Dessau	Crushing, grinding, drying and separating plant for chemical industry		Important
W. Büsching & Co.	Dölau	Sulphuric and nitric acid plant		
Max Kohn	Egeln	Chemical industry apparatus		

Table 33. Chief Manufacturers of Machinery and Equipment for the Chemical Industry in the Central Industrial Region (Cont'd)

Firm or Owner	Location	Production & Capacity	Equipment & Facilities	Remarks
Dampfkesselfabrik und Apparatebau Ernst Dietz	Erfurt	Chemical industry machinery		
J. A. John AG	Erfurt	Chemical industry apparatus		
Mako Maschinen Co. GmbH	Erfurt	Chemical industry and explosives industry		About 750 Workers. Important.
Herm. Weule	Goslar	Chemical apparatus		
A.L.G. Dehne	Halle	Filter presses for chemicals, dyes, oils, artificial silks	Has foundry	Important
F. Pampe	Halle	Alcohol recovery plants		
Arthur Vondran	Halle	Explosion-proof tanks		
Wegelin & Hübner	Halle	Plants for heavy chemical industry, filter presses, pumps, refrigeration plants	Has foundry	Important
Apparatebau und Wärmetechnik Paul Knichalik	Magdeburg	Apparatus for chemical industry		
Fried. Krupp Grusonwerk AG	Magdeburg-Buckau	Mixers for chemical industry; explosive and powder manufacturing equipment	See Heavy Machinery	Important

Table 33. Chief Manufacturers of Machinery and Equipment for the Chemical Industry in the Central Industrial Region (Cont'd)

Firm or Owner	Location	Production and Capacity	Equipment & Facilities	Remarks
A. W. Mackensen, Maschinenfabrik und Eisengiesserei GmbH	Magdeburg	Acid fittings		
Möller & Schulze	Magdeburg-Neustadt	Chemical apparatus; wood distillery plants		
Maschinenfabrik Buckau R. Wolf AG	Magdeburg-Buckau	Filter plants		
Wilh. Wiegand KG	Merseburg	Chemical apparatus		
"Mabag" Maschinen und Apparatebau AG	Nordhausen	Tanks for chemical industry, especially for benzol and gas oil. Explosion proof tanks.		Important
Maschinenfabrik Sangerhausen AG	Sangerhausen	Large plants for chemical industry; filter presses	Has foundry	Important
Fr. Gerhardt	Schönebeck	Chemical industry apparatus		
G. Sauerbrey AG	Stassfurt	Installations for potash works	Has foundry	
Eisen-und Hüttenwerke Thale AG	Thale	Enameled iron tanks and containers for chemical and food industries	Has open hearth and electric furnaces; foundry	Important
Apparatebau Bühring AG	Weimar	Products for chemical industry; disinfection equipment		

TABLE 34. CHIEF MANUFACTURERS OF FOOD PROCESSING MACHINERY AND EQUIPMENT IN THE CENTRAL INDUSTRIAL REGION

Firm or Owner	Location	Production & Capacity	Equipment & Facilities	Remarks
Karl Dorn	Ammendorf	Dough cutting machines.		
"Habämfa" Hallesche Bäckerei-Maschinenfabrik Rausch & Filbry	Ammendorf	Baking machinery.		
Akt.-Maschinenfabrik Kyffhäuserhütte	Artern	Corn & bruising mills. Cream separators.		
Braunschweigische Maschinenbauanstalt AG	Braunschweig	Sugar mill installations.	Has foundry.	
Clemens & Vogl	Braunschweig	Vacuum tin closing machines; machines for making tin cans.		
R. Karges & Co.	Braunschweig	Machinery for making tin cans.		
Karges-Hammer Maschinenfabrik AG (branch of Pantherwerke AG)	Braunschweig	Machines for canning industry; machines for manufacture of tin cans & boxes.		Several hundred workers. Important
Julius Klinghammer	Braunschweig	Tin closing machines; machines for making tin cans and boxes		
Lanico-Maschinenbau O. Niemsch	Braunschweig	Tin closing machines; machines for making tin cans.		

Firm or Owner	Location	Production & Capacity	Equipment & Facilities	Remarks
"Miag" Mühlenbau & Industrie AG.	Braunschweig	Milling machinery, vegetable oil plants, malt & brewing plants.	See Heavy Machinery.	Important
J.A. Schmalbach AG*	Braunschweig	Tin cans and food containers.		About 1000 workers. Important.
Selwig & Lange	Braunschweig	Sugar mill installations.		
F. Ch. Unger & Sohn*	Braunschweig	Tin cans.		
Gebr. Wehrstedt	Braunschweig	Tin closing machines.		
Wilhelm Liebermann	Burg	Starch production equipment.		
G.L. Eberhardt	Diemitz (nr.Halle)	Bakers' and confectioners' equipment.		
Friedrich Müller	Erfurt	Malt installations.		
J.A. Topf & Söhne	Erfurt	Brewing & malting plants.		
Hermann Bertram	Halle	Baking machinery.		
Peter Blum	Halle	Dough cutting machines.		

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* There are several other plants, in addition to those listed, manufacturing tin cans in Braunschweig, but they are small and not of great individual importance.

Firm or Owner	Location	Production & Capacity	Equipment & Facilities	Remarks
Hallesche Maschinenfabrik und Eisengiesserei	Halle	Raw sugar and sugar refining plants; margarine and edible oil plants; bakery machinery and ovens, presses for food and drink trades.	Has foundry.	Important.
E. Herbst & Co. K.G.	Halle	Stirring and beating machinery.		
Friedrich Herbst	Halle	Dough cutting & kneading machines.		
Franz Kohl	Halle	Dough kneaders.		
Alfred Lutze	Halle	Dough cutting machines.		
Chr. Prinzler & Söhne AG	Halle	Dough kneaders.		
W. Stavenhagen	Halle	Brewery installations.	Has foundry.	
Hugo Tretrop	Halle	Dough cutting machines.		
Wegelin & Hübner AG	Halle	Sugar factory, distillery, and oil extracting plants, presses for food & drink industries.	Has foundry.	Important.
Rudolf Dinglinger	Köthen	Sugar mill installations.	Has foundry.	
Maschinen-und Werkzengfabrik AG vorm. Aug. Paschen	Köthen	Sugar mill installations; presses for food & drink industries.	Has foundry.	

Firm or Owner	Location	Production & Capacity	Equipment & Facilities	Remarks
Maschinenfabrik Sangerhausen AG	Sangerhausen	Sugar mill installations.	Has foundry.	
Schöniger Maschinenfabrik GmbH	Schöningen	Sugar mill installations.		
V. Nebel & Co.	Schöningen	Butter churns.		
Seesener Blechwarenfabrik AG	Seesen	Tin cans.		
G. Sauerbrey AG	Stassfurt	Sugar plant equipment.	Has foundry.	
Sohler-Werke AG	Stassfurt-Leopoldshall	Tin cans.		
Stassfurter Blechwarenwerke AG	Stassfurt	Tin cans.		
H. Eberhardt	Wolfenbüttel	Sugar mill installations.		

vi. Miscellaneous Machinery and Metal Products. In addition to the special types of machinery already mentioned, a large variety of other kinds of machinery and metal products is manufactured in the Central Industrial Region. Although many supply principally regional needs, there are other products, such as office machinery, which are of national importance. The most important types of miscellaneous machinery and metal products manufactured in the region are (1) leather working machinery, (2) rubber manufacturing machinery, (3) laundry and cleaning equipment, (4) wood working machines, (5) typewriters and office machinery, (6) home sewing machines, (7) bicycles and motor cycles, (8) scales, (9) electrical equipment, and (10) various types of machine parts.

Although individual cases differ according to circumstances, to a large degree these industries have been converted, or at least their production directed, to war-important goods. A bicycle plant may still be producing goods for military and important civilian needs, but a typewriter manufacturer will probably be engaged in the manufacture of small arms and ammunition.

Magdeburg is the center of production of various types of machinery and metal products in the Central Industrial Region. Here are located Schäffer & Budenberg GmbH, and Maschinen- und Armaturenfabrik vorm. C. Louis Strube AG, important producers of valves and instruments, together with the famous Fr. Krupp Grusonwerke AG, which among its other numerous products manufactures machinery for the paper and rubber industries. In Braunschweig numerous types of machines are produced, of which the most important are typewriters, by Brunsviga-Maschinenwerke Grimm, Natalis & Co., AG, and bicycles by Pantherwerke AG. Other particularly important centers are Erfurt, Halle, and Gera. Details on the chief plants of the region are given in table 35.

TABLE 35. CHIEF MANUFACTURERS OF MISCELLANEOUS MACHINERY AND METAL PRODUCTS IN THE CENTRAL GERMAN INDUSTRIAL REGION

Firm or Owner	Location	Production & Capacity	Equipment Facilities	Remarks
L. O. Dietrich - Vesta Nähmaschinen Werk	Altenburg	Home sewing machines.	Has foundry.	
Mock & Krumsick	Altenburg	Gas & water fittings.		
Hermann Köhler AG	Altenburg	Home sewing machines.		1000 workers (1936)
Rud. Ley Maschinenfabrik AG	Arnstadt	Leather stitching, nailing, and cleaning machines.		180 workers (1938)
Arnstädter Waagenfabrik Aug. Broemel	Arnstadt	Scales.		
Siemens-Halske	Arnstadt	Electric cables & transmission lines.		
R. Reiss	Bad Liebenwerda	Blueprint & copying machines.		
Kessler	Bernburg	Tin pipes.		
Anhalt. Waagenfabrik Fried. Otto Müller K.G.	Bernburg	Crane weighers, weighing bridges.		
Brunsviga-Maschinenwerke Grimm, Natalis & Co. AG	Braunschweig	Adding and calculating machines.		
Braunschweiger Huttenwerke	Braunschweig	Small metal products; now reported manufacturing munitions.		
Carl Dempewolf	Braunschweig	Oil & water separators.		

Firm or Owner	Location	Production & Capacity	Equipment & Facilities	Remarks
Edler & Sohn	Braunschweig-Melverode	Gears, bevel, and pinion wheels.		
Heckner & Co.	Braunschweig	Joiners' machines.		
Librawerk Pelz & Nagel K.G.	Braunschweig	Scales.		
Oppermann & Deichmann	Braunschweig	Asphalt & tar boilers.		
Pantherwerke AG	Braunschweig	Bicycles, motorcycles, and baby carriages.		Important.
Roever & Neubart.	Braunschweig	Injectors.		
Foest & Loesche	Dessau-Rosslay	Dynamo brushes.		
Kaloriferwerk Hugo Junkers GmbH	Dassau	Heat exchanges & flow heaters.		
Wolter & Co.	Dessau	Paper & cardboard cutting machines; perforating machines.		
Elsterwerdaer Fahrradfabrik E.W. Reicherbach GmbH	Elsterwerda-Biehla	Duplicators		
August Wallmeyer	Eisenach	Scales.	Has foundry.	
Wartburg Schnellwaagenfabrik Albert Eberhard	Eisenach	Scales.		
Albertus u. Stepmüller GmbH	Eisenberg	Bathroom fittings.		

Firm or Owner	Location	Production & Capacity	Equipment & Facilities	Remarks
Eisenberger Metallwarenfabrik Prässler & Steudemann	Eisenberg	Safety mixing valves; bathroom fittings.		
Oehler & Gerber GmbH	Eisenberg	Bathroom & water fittings.	Has foundry.	
Hempel & Rippenger	Erfurt	Machinery for manufacture of rifle stocks, side arm hilts, and pistol grips.		
J.A. John AG	Erfurt	Laundry machinery, wood drying machines, air conditioning equipment.		750 workers (1938)
Klöppel & Suss GmbH.	Erfurt	Shoemaking machinery.		
Mako Maschinen Co. GmbH	Erfurt	Vacuum driers; vacuum tubes, transformers.		
Olympia Buromaschinenwerke AG (controlled by Allgemeine Elektricitäts Gesellschaft).	Erfurt	Typewriters & accessories.		
Deutsche Industriewerke (branch plant)	Erfurt	Typewriters.		
P. Tümmling	Erfurt	Manometers.		
Zander & Co.	Erfurt	Lable marking machines.		
Elze & Hess	Gera	Woodworking machines.		

Firm or Owner	Location	Production & Capacity	Equipment & Facilities	Remarks
Gust. Forssbohm.	Gera-Zwötzen	Laundry machinery		
Moritz Jahr AG	Gera-Liebschwitz	Chemical cleaning & washing machines		
Louis Rüdiger	Gera	Steam fittings.		
Traugott Golde	Gera	Fire extinguishers, medical & x-ray equipment.		448 workers (1938)
Fr. Schinke Maschinenfabrik	Goslar	Foundry cupolas.		
August Bloedner GmbH	Gotha	Various metal products.		
Theodor Ehrlich	Gotha	Pinion wheels.		
Gothaer Metallwarenfabrik	Gotha	Metal boxes and housings.		Estimated 1000 workers.
Karl Breitkopf	Halle	Steam fittings.		
Mollnau Brückenwaagenbau	Halle	Weighing bridges.		
C.A. Callm	Halle	Ice and refrigeration plant fittings; valves	Has foundry.	
Gose & Werner	Halle	Roofing felt manufacturing machinery.		
Hallesche Rohrenwerke AG	Halle	Tubes.		
Dicker & Werneburg GmbH	Halle	Lubricating apparatus, valves fittings.		

Firm or Owner	Location	Production & Capacity	Equipment & Facilities	Remarks
Hermann May	Halle	Joining machinery.		
Reuter & Stroube AG	Halle	Steel construction.		
Gebrüder Schoene	Halle	Scales.		
Rudolf Schoene	Halle	Scales.		
Rud. Speck	Halle	Safes and strong rooms.		
Alw. Taatz AG	Halle	Various types of machines.		
Herm. Winter	Halle	Lubricators and grease guns.		
Hugo Engelmann	Heiligenstadt	Needles and metal wares.		
G. Riemann	Hötensleben	Cooling pipe fittings.	Has foundry	
Otto Lamprecht	Jessnitz	Light metal fittings.		
Ph. Nebrich, vorm. Reinicke & Jasper GmbH	Köthen	Pulp dressers.		
Apparatebau-und Wärmetechnik Paul Knichalik	Magdeburg	Cellulose recovery plants.		
August Böhmer	Magdeburg	Scales.		
Max Dreyer & Co.	Magdeburg-Sudenberg	Machine packings.		
Dreyer-Bürckner & Co.	Magdeburg	Manometers.		
Otto Gruson & Co.	Magdeburg-Buckau	Pinion wheels. Reported producing some ball bearings.		

Firm or Owner	Location	Production & Capacity	Equipment & Facilities	Remarks
Junkers Motorenwerke	Magdeburg	Reported producing some ball bearings.		
Fr. Krupp Grusonwerke AG	Magdeburg-Buckau	Rollers, cutters, calanders and other machines for paper making industry. Special mixing and rolling machines for natural & synthetic rubber. Dolomite plants.	See "Heavy Machinery"	See "Heavy Machinery"
A.W. Mackensen Maschinenfabrik und Eisengiesserei GmbH.	Magdeburg	Valves.		
Magdeburger Waagen-Spezialfabrik M,&H, Schlüter	Magdeburg	Weighing bridges.		
Maschinen- und Armaturen fabrik vorm. C. Louis Strube AG	Magdeburg-Buckau	General engineering: valves, injection pumps, meters, fittings. Chief present importance as manufacturer of fuel injection pumps for aircraft & motor vehicles.	Has foundry	About 1000 workers. Important.
Metal Industrie Schönebeck AG	Magdeburg-	Bicycles, bicycle & motor cycle frames. 140,000 bicycles per year.		500 workers.

Firm or Owner	Location	Production & Capacity	Equipment & Facilities	Remarks
Gustav Funk Jun., Maschinenbauanstalt	Nienburg a. Saale	Mixing machines and calenders for rubber industry.		
Hagedorn, Selm & Co.	Nordhausen	Valves.		
Julius Fischer Maschinenfabrik	Nordhausen	Paper making machinery.		125 Workers(1938)
Metallwarenfabrik Robert Hoffman	Nordhausen	Blow off and overflow valves.		
Selm. Hagedorn & Co.	Nordhausen	Water fittings.		
Louis Gabler & Co.	Peine	Gas fittings.		
Heinrich Encke	Pöllwitz	Wood working milling machines.		
Metallwerk Terna Otto Hornbruch	Berlin Quedlinburg	Heating fittings, valves.		
Julius Heinrich	Quedlinburg	Gauges, temperature regulators and thermometers.		
Steinle & Hartung	Quedlinburg	Pressure regulators; apparatus for rubber industry.	Has foundry	
Wegener & Mach GmbH	Quedlinburg	Manometers.		

Firm or Owner	Location	Production & Capacity	Equipment & Facilities	Remarks
Mundlos AG	Magdeburg-Neustadt	Home sewing machines.		
J.C. Petzold	Magdeburg	Safes and strong rooms.		
"Polte" Armaturenfabrik	Magdeburg	Fittings for water power plants; hydrants, valves.		
Schaffer & Budenberg GmbH	Magdeburg-Buckau	Alloy castings; valves; pressure guages, instruments, etc. Reported making engines and generators for torpedoes.	Plant#1. Office laboratory, testing dept., boiler house, foundry, machine shops. Manufactures primarily lighter products. Plant #2. Laboratory, testing dept., boiler house, foundry, 50-ton electric furnace, machine shops. Manufactures primarily heavier products.	1600 workers
Wilhelm Stutzer	Magdeburg	Steam fittings.		
Armaturenfabrik Schell & Wilkendorf	Merseburg	Reducing valves.		
Otto Stewich	Merseburg	Paper mill calenders.		
Claes & Co.,K.G.	Mühlhausen	Leather working equipment.		

Firm or Owner	Location	Production & Capacity	Equipment & Facilities	Remarks
Siemens-Reiniger Werk	Rudolstadt	45% of X-ray and vacuum tube production of Germany; various electro-medical products.		
C.& F. Schlotauer	Ruhla	Gas fittings.		
Nähmaschinenfabrik Adolf Knoch AG	Saalfeld	Home sewing machines.		
August Reissmann	Saalfeld	Drying plants.		
Victoria Nähmaschinen-Fabrik GmbH vorm. Richard Knoch	Saalfeld	Home sewing machines.		
Armaturen- und Maschinenfabrik Lüer & Beims	Salzgitter	Sluice-valves & steam fittings.		
Sylbe & Pondorf AG	Schmölin	Lathes for wood-working and plastics.		
Oskar Jungmann GmbH	Schleiz	Water fittings.		
Schleizer Armaturenwerke Rudolf Sasse	Schleiz	Water fittings.		
Friedrich Schmidt	Schleiz	Gas fittings.		
W. Hassmann & Sohn	Schönwalde	Paper manufacturing machinery.		
Rhein-Metall Borsig AG	Sömmerda	Typewriters and office machines.		

Firm or Owner	Location	Production & Capacity	Equipment & Facilities	Remarks
Sohler Werke AG	Stassfurt-Leopoldshall	Sheet metal & iron goods.		
Eisen- und Huttenwerk Thale AG	Thale	Enameled household goods, sheet iron goods, bath tubs, etc.		
Otto Uhrbach	Zeitz	Flashlight batteries.		
Franz Braun AG	Zerbst	Die-casting machines for plastics.		
Carl Roth	Zeulenrod	Veneer presses.		
Gebr. Demmer AG.	Eisenach	Electric, gas, & coal kitchen stoves.	Has foundry.	1938: 450 workers

5. Arms and Ammunition. The production of arms and ammunition includes the manufacture of many types of equipment and supplies such as machine guns, anti-tank guns, anti-aircraft guns, rifles, pistols, mines, grenades, etc.

The Central Industrial Region is not one of the foremost arms- and ammunition-producing areas in Germany. It is impossible to obtain complete or specific information upon the industry as a whole, but that available provides a sample cross-section of types of arms produced. Moreover, some insight may be gained into the manner in which plants have been converted to the production of arms, and the factors which have been important in this change.

In particular, machine industries of the Central Industrial Region have lent themselves to conversion to the production of armaments and armaments components. In addition, the region possessed before the war a large supply of skilled labor.

Plants which produced such widely differing products as typewriters, sewing machines, and plumbing equipment may now be found manufacturing arms and ammunition, frequently of similar types. The conclusion of the war will find normal machine and metal goods industries widely disrupted by the changes which have been instituted in many factories.

In addition to this widespread conversion process, the industry has also been strengthened by the construction of new and frequently concealed arms and ammunition plants. Reports on these can only be fragmentary at best. One example is the underground ammunition plant reported in operation at or near Nordhausen. Plants of this type will raise the problem at the end of hostilities of disposition of buildings and equipment, and redistribution of workers.

Intensive efforts have been directed by Germany towards the highest possible efficiency and production of the armament industry. An extensive program of nationalization and standardization has been in force since 1941, concentrating upon strict reduction in the types of product manufactured, and extensive sub-contracting for component parts. Moreover, all operations not strictly necessary for the efficiency of the product have been eliminated and production has been so organized as to economize wherever possible upon labor and material.

Details of certain of the principal known arms producers in the region are given in table 36.

TABLE 36. PRINCIPAL KNOWN PRODUCERS OF ARMS AND AMMUNITION IN THE CENTRAL INDUSTRIAL REGION

Firm or Owner	Location	Production and Capacity	Principal pre-war product	Remarks
G. Polysius AG	Dessau	13 and 20 mm. machine guns. 3.7 cm. AA guns	Heavy industrial machinery and equipment.	Important
Bayerische Motoren	Eisenach	5 cm. AT guns; 7.92 mm. and 15 mm. AT machine guns. About 100 AT guns per month. Principally important for aero engines.	Motor cars and trucks	Rated 10th in 1941 among German tank armament producers (MEW)
Gebr. Demmer AG	Eisenach	Mine cases, components for mines and shells; field kitchens.		450 workers (1938)
"Erma" Erfurter Maschinen-und Werkzengfabrik	Erfurt	Rifles, pistols, machine guns and components.	Machine tools	850 workers.
J.A. John AG	Erfurt	Small arms components.		1000 workers.
Olympia Buromaschinenwerke	Erfurt	Small arms and ammunition.	Typewriters and office machinery.	2000 workers.
Mundlos AG	Magdeburg-Neustadt	Believed employed on components for small arms and machine guns.	Sewing machines.	1500 workers.

Firm or Owner	Location	Production and Capacity	Principal pre-war product	Remarks
Patronen Zundhutchen- und Metallwarenfabrik	Magdeburg-Bad Salzelmen	Ammunition, cartridges, percussion caps, small arms, etc. Also machinery for their production.		Very important.
Polte Armaturen- und Maschinenfabrik AG	Magdeburg-Wilhelmstadt	Arms and armament equipment. 8.9 cm. and 10.5 AA guns. Best known as machine tool and ammunition makers. AA gun production probably new development since war.	Water fitting, valves, hydrants.	Very important
Schäffer and Budenberg GmbH	Magdebur-Buckau	Parts for torpedoes. See "Other Metal Workers Equipment".	Alloy casting, valves, pressure gauges, instruments, etc.	1600 workers. Very important.
Underground ammunition plant	Nordhausen	Ammunition		Built in 1942. Reported in 1944.
Arms & munitions plants	Ruhla Area			
Gebrüder Thiel	Ruhla	Aircraft instruments, mechanical fuses.	Machine tools.	Important.
Gebrüder Thiel (branch)	Seebach	Time fuses. Production of Seebach and Ruhla plant estimated at 100,000 time fuses daily.	Watches	About 3000 workers reported.

Firm or Owner	Location	Production and Capacity	Principal pre-war product	Remarks
Gebruder Thiel (branch)	Thal	Ammunition and time bombs.		About 500 workers.
Junghorn	Ruhla	Fuses.		
New factory	Immelborn	Ammunition.		Built 1936. About 1500 workers.
Dreyse & Collen-Bush	Sömmerda	Light machine guns and other small arms.		
Rheinmetall-Borsig	Sömmerda	Bomb components, mainly light alloy parts (fuses incendiary bodies), delay-action mechanisms, electrical components, fuses.		
Selve-Kronbiegel Dornheim AG	Sommerda	Small arms ammunition, small arms components, light machine guns, pistols, etc.		Important.
Eisen- und Hüttenwerke Thale AG	Thale	Reported making driving bands for shells.	Chemical industry machinery, sheet-iron goods, etc.	
Berlin-Suhler Waffen-und Fahrzengwerke (Fritz Sauckel Werke)	Weimar-Nord	Small arms & military transport.		Very important. Reported 6000 workers.

B. Chemical Industries

1. General Setting. Until the first World War German chemical industry had been concentrated largely in the Rhine-Ruhr region, where abundant raw materials were available but where industrial congestion prevented new plant development on a large scale. Under the exigencies of the war, the chemical industry discovered that the Central-German lowlands provided not only ample natural resources for the specific requirements of chemical production, but also industrial sites extensive enough for future expansion. Thus, the post-war development of Germany's chemical industry took place largely in Central Germany. For a proper understanding of the present state of the chemical industry in the Central Industrial Region, and for some of the main problems likely to arise in its administration, a knowledge of the brief but highly dynamic development of this industry, is essential.

The industrial development of the region is closely linked with the rise of the German chemical industry. The first stage in the transformation of the then predominantly agricultural region into a modern industrial area began in the 1860's, when the progress of chemistry first revealed the industrial importance of the enormous regional salt and potash deposits. On the basis of these deposits the potash, fertilizer and, alkali industries of the Central Industrial Region were founded and grew into a powerful modern industry.

The second stage in the evolution of the Central Industrial Region into one of Germany's principal chemical manufacturing areas dates from World War I, when numerous war-born chemical industries started operations near the eastern end of the Harz Mountains. The post-war period witnessed a modification of the wartime trend in the conversion of chemical war industries to peacetime production, without interference on the part of the victors, and initiation of new production, based on the rapid progress of science in the various fields of industrial chemistry.

The next stage in the development of the regional chemical industry coincides with Hitler's rise to power and was characterized by transformation of Germany's peacetime chemical industry into an instrument of total war. Germany was deficient in most of the raw materials essential for waging a modern war, and consequently depended on imports. Development of substitute materials through chemical synthesis of domestic raw materials was the only peacetime method of breaking this dependency and making the German economic position blockade-proof. The chemical industry, which, since World War I, had continued research in the field of synthetic raw materials, was assigned the task of developing its processes from the experimental stage to large-scale production. Safety from air attack for new industrial developments was a guiding principle. The Central German Region, in the heart of the country between the Saale and the Elbe rivers, seemed to provide such safety. Consequently much of the development of Germany's synthetic industries was concentrated in or near the Central Industrial Region, and gigantic chemical works with an annual output of many hundred thousand tons rose where small pilot plants had formerly produced in tens of pounds (See Map No. 3245).

Today the plains at the eastern fringe of the Central Industrial Region are a chemical nerve center of the German war economy and its river valleys have developed into an industrial area, closely resembling the congested Rhine-Ruhr Region.

a. Raw Materials. Coal and water are two of the raw materials most essential for the chemical industries, which call for generation of definite temperatures, pressure and electric energy, and for cooling and condensing operations.

The chemical industry consequently uses coal and water in enormous quantities. As raw materials -- coal, often in conjunction with lime, is used for all coal-tar derivatives, and water in all processes involving the liquefaction of solid or gaseous matter; as factors of production, coal is used as fuel in the generation of heat and pressure, and water as a cooling and purifying agent; and as a source of electric energy, coal and waterpower, either singly, jointly or alternately form the basis of electric energy. In addition, streams with abundant water supply are essential as a repository for the industrial waste-liquors.

The role played by water and coal in chemical production is illustrated by the amount of these commodities used daily in the regular operation of the Leuna works. The daily water consumption amounting to between 640,000 and 1,000,000 MT and the daily coal consumption to 22,000 MT.

On the basis of these figures, it is not difficult to understand why experts agree that Leuna's total production would be completely cut off, if its water supply were disrupted.

The presence of coal and water favors the location of the chemical industry in the river valleys in the eastern part of the Central Industrial Region. The region possesses brown coal deposits adequate for most purposes of chemical production. Water is supplied mainly by the Saale, Mulde, and Elbe Rivers and their tributaries, which flow past brown coal deposits. (See Map No. 3245).

b. Labor. As a source of productive employment, the chemical industry rated seventh place in 1933 among the regional industries. Between 1933 and 1938 the chemical industry more than doubled the number of persons on its payroll and attained fourth place among industrial sources of employment. The following pie chart shows the increase in employment between 1933 and 1938 for the chemical industry, and its relation to the total industrial employment within the Central Industrial Region.

The composition of the labor force employed in the chemical industry deviates from the general industrial employment pattern. Due to the highly technical nature of many operations, it is necessary to maintain both a staff of operational supervisors and a permanent research staff composed of scientists. Consequently, an unusually high percentage of the total employment is absorbed by salaried employees and a correspondingly low percentage by labor proper, as indicated by the following figures:

Composition of Labor Force

Industry	Total Employees Number	Clerical and Technical Employees Number	Percent	Industrial Workers No.	Percent
Chemical Industry	328,470	74,005	22.5	249,683	76
All Industries	7,950,193	953,092	12.0	6,841,767	86

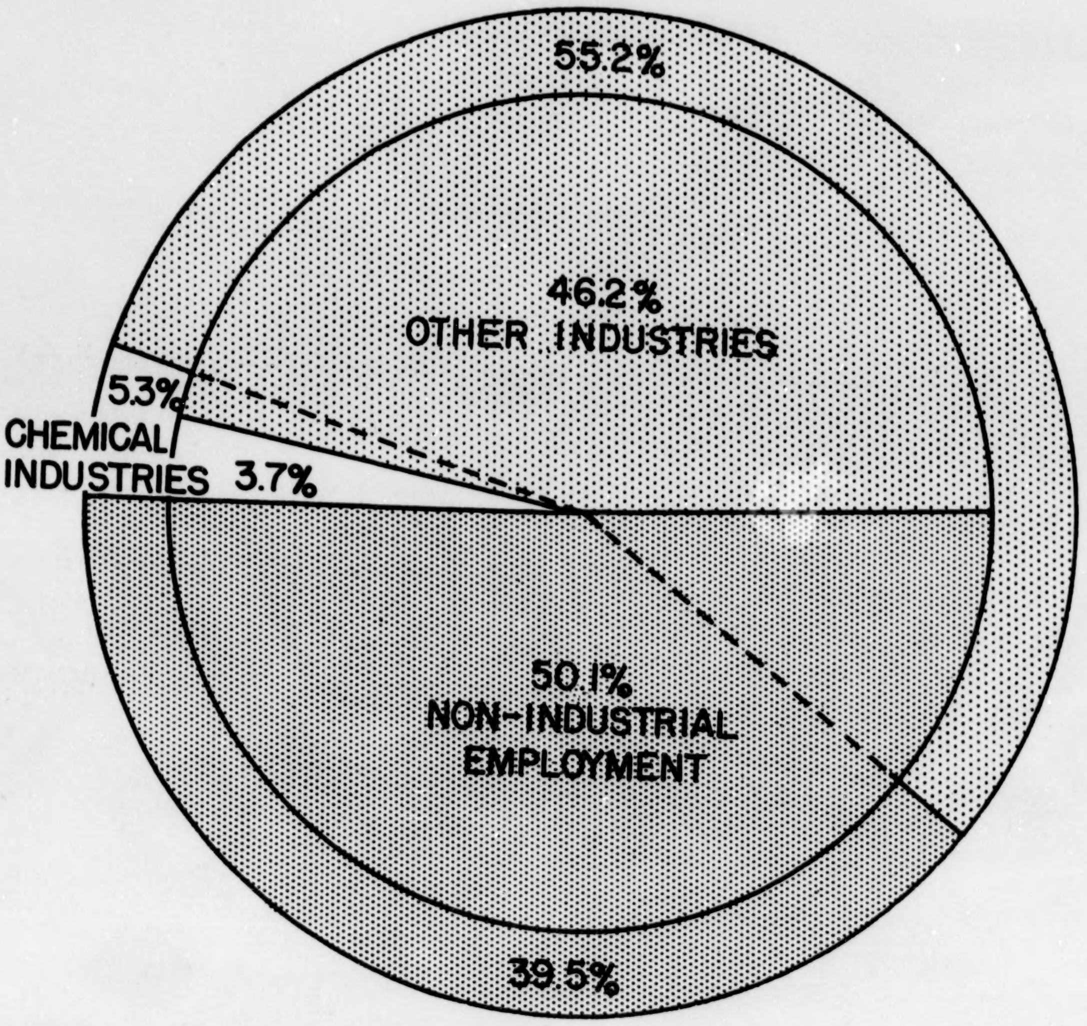
Payroll and Net Production Values

Industry	Payroll in 1,000,000 RM	Net Prod. Value in 1,000,000 RM	Payroll as percentage of Net Prod. Value
Chemical Industry	753.7	2,546.4	29.6
Machine Industry	1,888.7	2,615.3	46
All Industries	13,261.5	34,185.5	38.5

Among the labor force a small percentage of well trained and experienced skilled labor is offset by an unusually high percentage of unskilled or semi-skilled labor. Apart from chemical industries with a high ratio of processing and merchandising operation, such as the pharmaceutical and cosmetic industries, employment of women (18.9 percent) is far lower than the general industrial average because of health hazards inherent in the work. Consequently, it may be assumed that a great deal of unskilled

DISTRIBUTION OF EMPLOYMENT: 1933 and 1938
CENTRAL GERMAN INDUSTRIAL REGION

Type of Employment	Employment (in 1,000s)		Percentage of total employment		Employment increase 1933 to 1938		1933 as percent of 1938 employment
	1933	1938	1933	1938	(in 1,000s)	Percent	
Chemical industries	46.0	99.2	3.7%	5.3%	53.2	116%	46.5%
All industries	620.9	1133.9	49.9%	60.5%	513.0	82%	56.0%
Total employment	1245.0	1875.0	100%	100%	630.0	50%	66.5%



Area of small circle: Employment in CIR in 1938
Area of large circle: Employment in CIR in 1938

labor is now being recruited from foreign workers and prisoners of war.

The chemical industry is characterized by a peculiarly low rate of employment in relation to the net-value of its output. The highly unfavourable employment ratio becomes even more striking if the high percentage of technical employees, commanding far higher salaries than the regular wage worker, is taken into consideration. This unfavorable ratio of employment creation is of great significance in evaluating the postwar employment potentialities of the chemical industries in the Central Industrial Region.

A significant feature of the chemical industry as a regional source of employment is the fact that the present labor complement, employed in this industry consists mainly of imported, non-resident labor. The enormous expansion of synthetic industries subsequent to the outbreak of war and coincident with the absorption of the bulk of resident regional labor by the German armed forces, accounts for the fact that these industries have never come to be considered as a regular regional source of employment by resident regional labor.

c. Chemical Production. The latest official figures of chemical production in the Central Industrial Region date from 1936. German authorities have done their utmost to shroud later developments in greatest secrecy.

The Pie Chart of "Industrial Net Production Value" illustrates, on the basis of 1936 figures, the ratio of chemical production of the region, and the relation of regional output to aggregate German industrial and chemical production. In 1936, however, synthetic chemical industries accounted for no more than 4.9 percent of total German chemical output. Though definite figures for later dates are not available, it is safe to assume that chemical production of raw materials, synthetic end products such as synthetic gasoline and oil, synthetic rubber, rayon and staple fiber for textiles, and synthetic resins for plastics, synthetic fatty acids for soap, and the sugarization of wood for fodder -- must account for over 50 percent of present German chemical production.

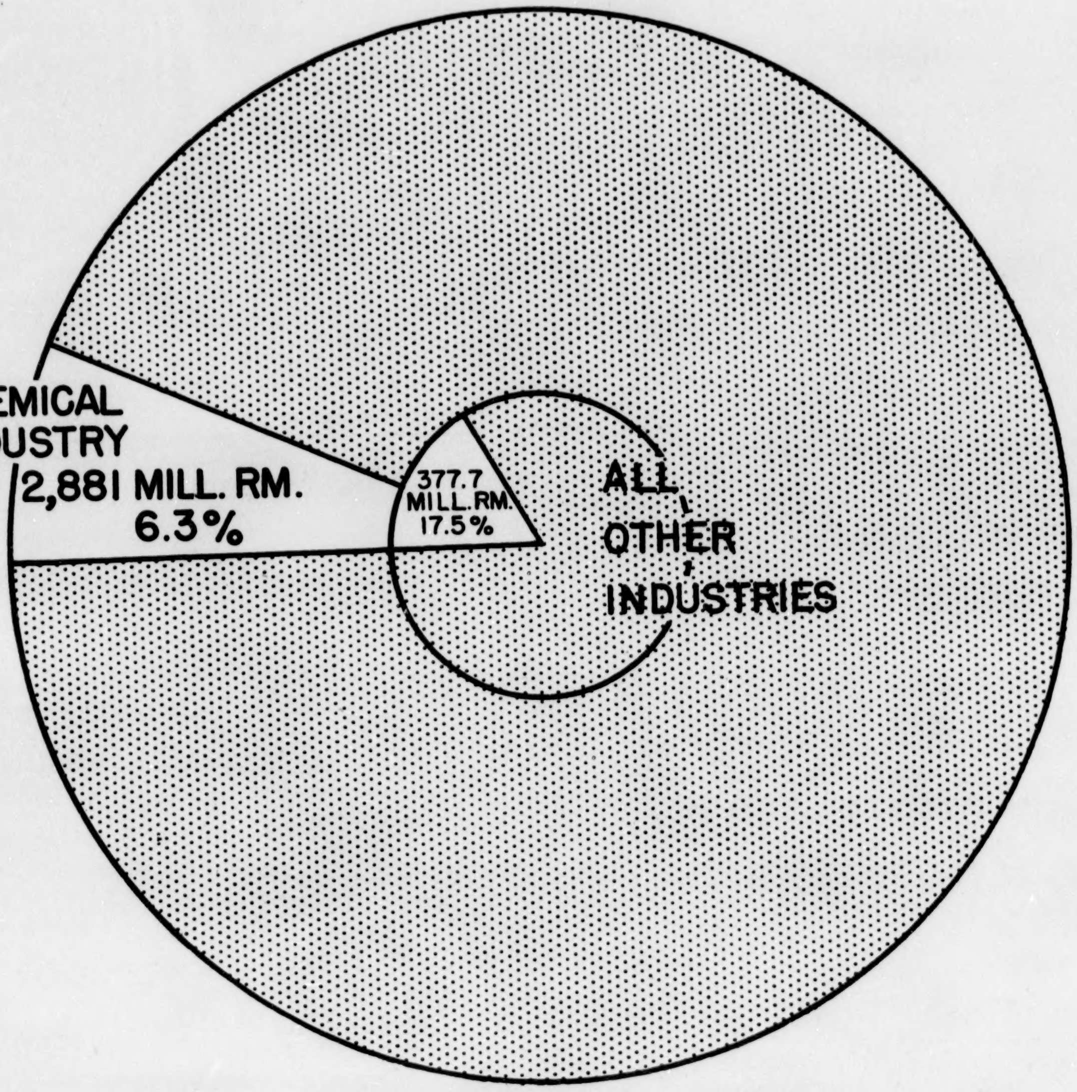
The recent development of synthetic industries was almost completely concentrated within the Central Industrial Region and its outer fringes and took place largely through new plant construction rather than conversion. It may be estimated that the increase in manufacture of synthetics, alone, accounted for a net increase of 50 percent in the total chemical production of Germany between 1936 and 1943 -- the major part of the increase occurring in the Central Industrial Region.

d. Organization of the Industry. IG Farbenindustrie AG, the German Dye Trust and at the same time the biggest and most powerful concentration in the German chemical industry, is the most important factor in the regional chemical industry. The Leuna works (the Largest combined chemical works in the world), the Wolfen-Bitterfeld works, the Schkopau rubber plant, and many other chemical plants in the region are owned, controlled, or managed by IG Farben (Map No. 3245).

IG Farben is not the only exponent of large-scale concentration in the chemical industry of the region. Chemical production, to be efficient, calls for huge investment of fixed capital assets and consequently shows a marked tendency for mergers and amalgamations with the eventual emergence of powerful combines. The most important of these combines are (1) Wintershall AG, undisputed leader in the potash field, which recently branched out into many other fields of chemical and general industrial

INDUSTRIAL NET PRODUCTION VALUE
GERMANY AND CENTRAL GERMAN INDUSTRIAL REGION (CIR)

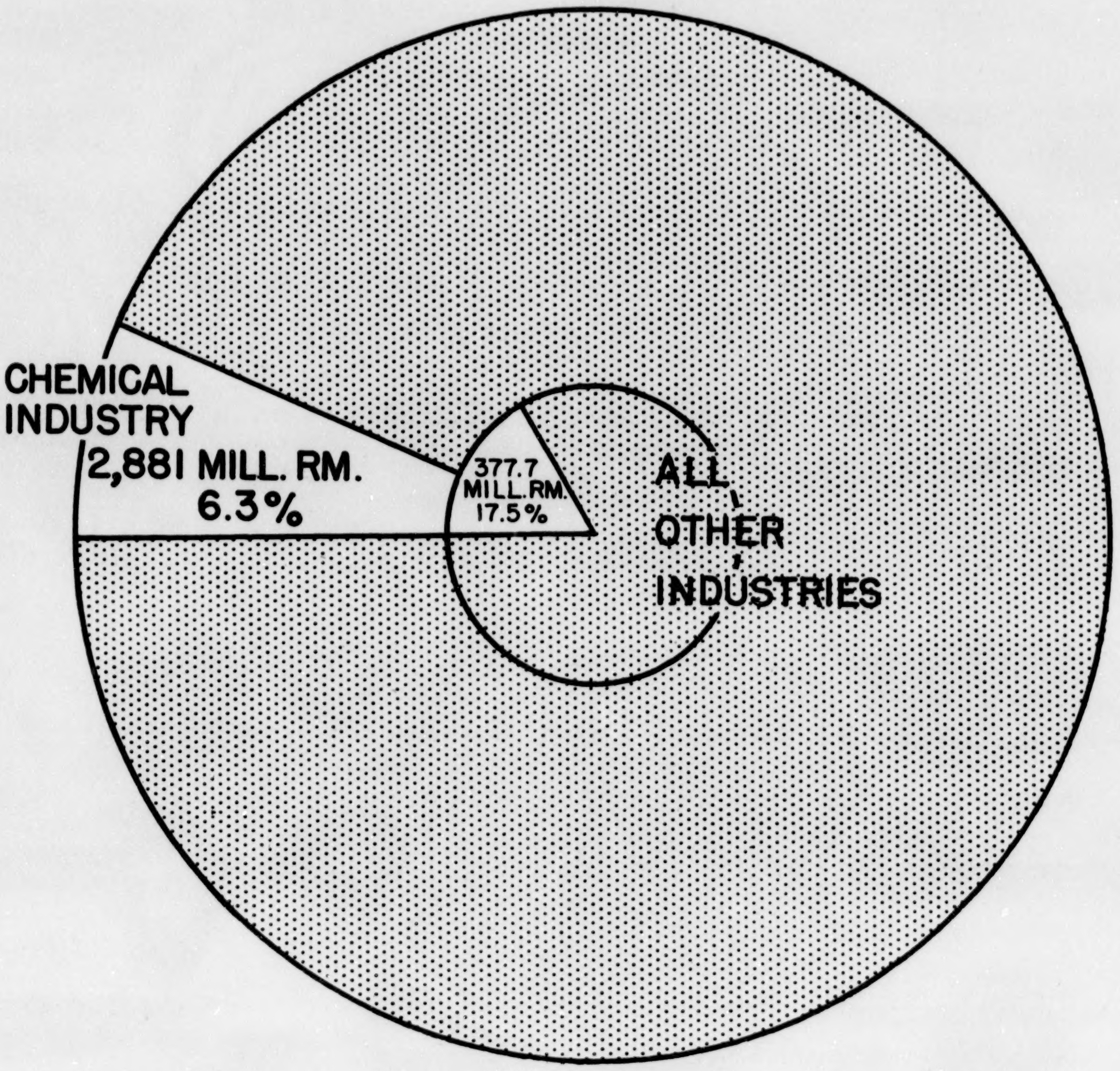
Industry	Germany (in 1,000 RM)	CIR (in 1,000 RM)	CIR as % of Germany	CIR production
Chemical	2,881	377.7	13.1	17.5
Total industry	34,186	2,148.6	6.3	100.0



Area of large circle: German Net Production Value
Area of small circle: CIR Net Production Value

INDUSTRIAL NET PRODUCTION VALUE
GERMANY AND CENTRAL GERMAN INDUSTRIAL REGION (CIR)

Industry	Germany (in 1,000 RM)	CIR (in 1,000 RM)	CIR as % of Germany	CIR production
Chemical	2,881	377.7	13.1	17.5
Total industry	34,186	2,148.6	6.3	100.0



Area of large circle: German Net Production Value
Area of small circle: CIR Net Production Value

production, and (2) Dynamit-Nobel AG, leader in the field of explosives, which is connected with IG Farben through an agreement providing for interlocking directorates, optional exchange of Dynamit-Nobel shares for IG Farben shares, and for mutual profit-sharing on the basis of a guaranteed dividend by IG Farben to Dynamit stockholders in the amount of half the dividend paid to IG Farben stockholders. Though nominally independent, and in itself the result of numerous mergers, amalgamations, and pyramiding in general, Dynamit-Nobel is actually to be considered a subsidiary of IG Farben.

The chemical industry is organized as an industrial group in the framework of the "Gruppen-organisation" of German industry. This organization was created by the Nazi Party for the control of industry through the State and the Party, and is in its legal nature an autonomous body, which rules over the destinies of the industry with almost sovereign power.

e. Functional Integration. German domestic propaganda has unceasingly popularized the fact that German industrial chemistry can convert domestic coal, lime, and wood into a great variety of end-products. Although a propagandist oversimplification, it is nevertheless true that industrial chemistry in general, and German industrial chemistry in particular, is founded on the use of a small number of basic raw materials which can be made to yield highly diversified finished and half-finished products by combining them and their derivatives with each other in varying proportions, through the application of manifold chemical processes, and through the use of divergent types of equipment.

This ability to produce different end-products from the same raw materials is the significant factor in which chemical industry differs radically from mechanical industries. Consequently, the chemical industry must be viewed as an undivided whole in order to be viewed correctly. Any classification according to end-products serves only to facilitate the discussion of specific aspects of this industry; there are no rigid borderlines separating one group within the chemical industry from others.

A few instances will serve to illustrate the interrelation of chemical industries. The potash industry, basically closely related to the chlorine and alkali industries which convert common salt into chlorine and alkalies, extends by further processing of the potash salts into the field of the fertilizer industry, where it joins with the fertilizer branch of the nitrogen industry and with the producers of phosphate fertilizers. A more striking example is coal-tar industry, which provides the basis of synthetic gasoline, synthetic rubber, plastics, pharmaceuticals, and explosives. Only limits of capitalization and available equipment limit the possibility of extending from basic chemical operation into most or all of the other chemical fields.

For convenience in discussing the Central German chemical industry, it has been broken down into the following classes:

i. Industrial Chemicals -- chemicals used in bulk as raw materials in the production of other chemicals. This group includes sulphuric acid, nitrogen, coal-tar derivatives, alkalies, and chlorine. This industry serves a legitimate economic need by supplying other parts of the chemical industry and other industries with indispensable raw materials.

ii. Commercial Chemicals -- chemicals finished to the stage of direct consumption or further processing by nonchemical industries. This group comprises dyes, paints, lacquers and varnishes, pharmaceuticals, film and photomaterials, fertilizers, wood pulp, and cellulose. This group forms the bulk of those chemical industries which were paramount in contributing to German exports in the chemical field.

iii. Synthetics -- chemicals replacing formerly used natural raw materials. This group includes synthetic staple fibers and rayon, synthetic gasoline and oil, synthetic rubber, and plastics. Whether this group of industries is economically justified and could survive in a free economy regulated by a "free-price system", has never yet been put to a test. From information hitherto available, it would appear that their chief economic justification is based upon the premise of "making Germany blockade-proof". With the exception of the rayon and plastics industries, synthetic industries produce end-products inferior in quality to natural raw materials at a prime cost in excess of market prices for the natural raw materials, which they replace.

iv. War Chemicals -- chemicals used as a direct means of warfare and containing mainly explosives and chemical warfare agents.

v. Chemical Processing Industries -- industries not strictly chemical in nature but with chemical processes involved in production. This group deals mainly with glass and ceramics, and paper and paper products, all of which are industries serving legitimate needs of German domestic economy.

2. Industrial Chemicals.

a. Chloride and Alkalies.

i. Importance and Location. Over half of the German supply of chlorine and over a third of the supply of alkalies is manufactured in the Central Industrial Region. Several factors have contributed to the heavy concentration of the industry in this area, particularly near Bernburg and Bitterfeld. Rich deposits of rock salt, the basic raw material used in the production of both chlorine and alkalies, are found in abundance in central Germany. Since electrolytic processes are used to manufacture these products, large amounts of electric power are required, for which the brown coal deposits underlying the region provide an easily obtainable source. In addition to the readily available raw materials, there are excellent rail and water facilities for transporting these bulky raw materials to the plants. Lastly, the chlorine and alkali plants are located within the large consuming market of central Germany, with its extensive chemical and synthetic industries and magnesium and aluminum works.

ii. Finished Products. Chlorine, a gaseous chemical element, can be used directly, but is most frequently liquified by cooling under pressure and stored in steel cylinders and tanks for commercial handling. Chlorine, a basic peacetime industrial chemical, gains strategic importance during war as an essential material in the manufacture of chemical warfare agents such as poison gases, smoke screens and decontaminants, cellulose industries (staple fiber and rayon, pulp and paper), and the manufacture of various chemical compounds.

The products of the alkali industry, (caustic soda, soda ash and potash) are essential raw materials in a number of industries of strategic importance to Germany (See: Potash Industry B 3 a, following). Caustic soda, the most important alkali, is used in the manufacture of synthetic fibers, reclamation of rubber, and for the purification of bauxite in the manufacture of aluminum. Wolfen, the only synthetic fiber plant in the Central Industrial Region, uses 10,000 metric tons of caustic soda per year. Soda ash is of strategic value chiefly because large quantities are used in the manufacture of caustic soda. Table 37 gives a more complete list of industrial uses of these products.

(1) Raw Materials and Processes.

Chlorine and caustic soda are produced simultaneously by the electrolysis of a sodium chloride solution, which yields about a pound of chlorine to a pound and a quarter of caustic soda. Originally caustic soda was considered the main product and the amount of chlorine produced as a by-product was determined by the demand for caustic soda. The increasing importance of chlorine, however, has reversed the relationship so that chlorine is now considered the main product.

Electrolysis of brine may be carried on in two types of electrolytic cells, diaphragm and mercury. Before the war diaphragm cells were used chiefly but IG Farben plants had begun to replace them with mercury cells. By using mercury cells the chlorine production capacity is increased and a higher caustic concentration is obtained. Chlorine is also derived from the electrolysis of potassium chloride solution, which yields caustic potash as a co-product, and from the electrolysis of sodium, magnesium, or calcium salts in the fused state, yielding metallic sodium, magnesium, and calcium, respectively, as co-products. Large amounts of electric power are required for the manufacture of chlorine; about 2750 - 2850 kwh. per ton is used for the electrolysis of a sodium salt solution.

Caustic soda besides being produced with chlorine in the electrolysis of brine, is also manufactured by treating soda ash with milk of lime.

Soda ash is made by the Solvay process which consists of saturating a salt brine with ammonia gas and charging it with carbon dioxide. The remaining sodium bicarbonate is converted to soda ash by calcination.

Table 37. INDUSTRIAL USES OF CHLORINE AND ALKALIES

Product	Industrial Uses
Chlorine	Solvents, synthetic rubber, intermediates, cellulose industries, chemical warfare agents, plastics, bleach, chlorination.
Caustic Soda	Cellulose industries, purification of bauxite, reclamation of rubber, textile industry, mineral and vegetable oil refining. Synthesis of organic compounds.
Soda Ash	Caustic soda, sodium bicarbonate, soap, smelting and metallurgy, glass, textile industry.

iii. Production and Consumption. Total pre-war German chlorine-production capacity is estimated at about 300,000 MT a year, with actual production in 1939 amounting to about 170,000 MT. By the introduction of mercury cells into some of the plants, the production capacity has been expanded. Present German production cannot be estimated because of the secrecy surrounding chlorine output, but production probably now closely approximates capacity. Since over half the German capacity is located in the Central Industrial Region, it may be presumed that the 1944 production of the region will amount to some 150,000 MT. The IG Farben plant at Bitterfeld alone possesses a third of the total German capacity for producing chlorine.

Total German production of caustic soda from all processes amounted to about 1,000,000 MT in 1939. Although complete production figures are not available it is known that the share of the Central Industrial Region in total German production of caustic soda is very large.

Total German production of soda ash in 1939 was 1,180,000 MT of which 26 percent was supplied by the Deutsche Solvay Werke plants at Bernburg, Osternienburg, and Buchenau.

Table 38 lists chlorine and alkali consuming industries, all of which are found in Central Germany. Although it is impossible to determine consumption requirements of these industries, it may be safely stated that, in view of the large production capacity, the supply of chlorine and alkalies is more than adequate to meet the demand of industries within the region.

b. Sulphuric Acid.

i. Importance. Sulphuric acid is required in large amounts in the production processes of a variety of important peace and wartime industries, such as the fertilizer, synthetic fiber, and explosives industries. These industries and other consumers of sulphuric acid in the Central German Industrial Region obtain their supply chiefly from the twenty sulphuric acid plants within the region, which together accounted for over 25 percent of total German output of about 2,800,000 MT in 1939.

ii. Location. The industry is concentrated along the Elbe and Saale Valley from Magdeburg to Merseburg with heaviest production centered in the large chemical plants at Merseburg, Wolfen, and Magdeburg (Map No. 3245). Table 39 gives the location of producers in the region, production and other information available.

Table 38. PRINCIPAL CHLORINE AND ALKALI PLANTS IN THE CENTRAL INDUSTRIAL REGION

Company	Location	Products	Estimated Capacity	Process	Remarks
I. G. Farbenindustrie AG	Bitterfeld	Chlorine	100,000 p. a.		Produces about 1/3 of total German output of chlorine.
		Caustic Soda	340 p. da.	Electrolysis	
		Caustic Potash	- - -	Electrolysis	
Deutsche Solvay Werke, AG	Bernburg	Soda Ash	410,000 p.a.(1941)	- - -	1. Dominates German Soda Ash production with about 26% of total German production.
		Chlorine	7,500 p.a.(1938)	- - -	
		Caustic Soda	15 p.da.(1941)	- - -	
	Osternienburg	Caustic Soda	10 p.da.(1941)	Electrolysis & causticization	2. Chlorine capacity reported trebled recently.
		Caustic Potash	n. a.	Electrolysis	
		Chlorine	12/15,000 p.a. (1938)	Electrolysis	3. Operates 7 potash and rock salt mines in Anhalt.
	Buchernau	Soda Ash	n. a.		
Kali Chemic AG	Zscherndorf nr. Bitterfeld	Caustic Soda	n. a.	Probably electrolysis and causticization	1. Although production not available, company ranks high in Germany.
		Caustic Potash	n. a.	Electrolysis	
		Chlorine	n. a.		2. Reported to have electrolytic alkali plant at Bitterfeld.
		Potash	40 t.p.da. (1943)		
Chemische Fabrik (subsidiary of Goldschmidt AG Essen)	Buckau	Soda Ash	n. a.		1. Produces 4% of total German output.
	Ammendorf	Caustic Soda	n. a.	Probably electrolysis and causticization.	2. Plant reported to be of most modern design.
		Caustic Potash	n. a.	Electrolysis	
		Chlorine	n. a.		
	Stassfurt	Soda Ash	n. a.		

Table 38. Principal Chlorine and Alkali Plants in the Central Industrial Region (continued)

Company	Location	Products	Estimated Capacity	Process	Remarks
Soda Fabrik Stassfurt GmbH (Subsidiary of the Goldschmidt AG)	Stassfurt	Soda Ash	n. a.		Possibly the soda ash plant of Chemische Fabrik Buckau
		Caustic Soda	n. a.	Causticization	
Chemische Werke GmbH	Zscherndorf nr. Bitterfeld	Chlorine	n. a.		
Chemische Werke Regethan. GmbH	Loderburg nr. Bitterfeld	Chlorine	20,000 p. a. (1938-1939)		
Alkaliwerke Westeregeln GmbH	Westeregeln	Chlorine	n. a.		Probably plant reported to be jointly owned by Kaliwerke Salzdetfurth AG and Kaliwerke Aschersleben both of which are mainly potash producers. Reported also to manufacture caustic soda and chlorate explosives.

Table 39. SULPHURIC ACID PRODUCERS IN CENTRAL GERMANY

Company	Location	Production	Process	Remarks
I. G. Farbenindustrie, AG	Leuna	450,000 to 600,000	contact	Sulphur obtained from hydrogenation of coal.
	Wolfen	80,000 to 100,000	contact	Sulphur obtained from gypsum.
Georg V. Giesche's Erben	Magdeburg	60,000 to 70,000	chamber	Sulphur obtained from zinc smelting.
Preussische Bergwerks und Hütten AG	Oker	55,000	contact	Sulphur obtained from lead and zinc smelting.
Hansfeldscher Kupferschieferbergbau AG	Eisleben Mansfeld	40,000 to 50,000	chamber chamber	Sulphur obtained from copper and lead smelting.
Fahlberg-List AG	Magdeburg	20,000	contact	Imports pyrites.
Chemische Werke vorm. P. Römer & Co., AG	Nienburg	5-10,000 in 1928	n. a.	Super-phosphate manufacturer. Imports pyrites
Chemische Werke Schönebeck, AG	Magdeburg	20,000	prob. contact	
Julius Grosse Superphosphatfabrik	Oschersleben	5-10,000 in 1928	chamber	
H. A. Meyer & Riemann Chemische Fabrik AG	Coswig	3-5,000 in 1928	n. a.	Imports pyrites.
Chemische Fabrik Goldschmieden, H. Bergius & Co.	Halb Trothe nr. Halle	3-5,000 in 1928	n. a.	

Table 39. Sulphuric Acid Producers in Central Germany (continued)

Company	Location	Production	Process	Remarks
Stassfurter Chemische Fabrik vorm. Vorster & Grünberg, AG	Stassfurt	n.a.	chamber	
Gebrüder Giulini GmbH	Barby	n. a.	n. a.	
Berzelius Metall Hütten	Bernburg	n. a.	chamber	
Mitteldeutsche Superphosphatwerke GmbH	Köthen Dodendorf (nr. Magdeburg)	n. a.	n. a.	
Chemische Fabrik Buckau	Ammendorf	n. a.	n. a.	Imports pyrites.

iii. Finished Product and Raw Materials. Commercial sulphuric acid is usually a solution of sulphuric acid in water in degrees of concentration varying from about 62 percent to 100 percent sulphuric acid content. Most of the essential war industries call for a concentration higher than 90 percent. The fertilizer industry uses 78 percent concentration.

Sulphur, the basic ingredient in sulphuric acid, does not exist in an elemental state in Germany and must, therefore, either be imported from Italy or extracted from iron, zinc, lead, or copper sulphide ores. Although some metallic sulphides are mined in the Harz Mountains, the majority of them must be imported, mainly from Spain, Norway, and Yugoslavia. As the wartime blockade has reduced the imports of iron sulphide, the major pre-war source of sulphur, the extraction of sulphur from materials available locally has increased. Supplies of gypsum, which are abundant in the Central Industrial Region, are used either in the Müller-Kühne process (which heats gypsum, coal, and clay in the presence of steam, yielding sulphur dioxide as the main product and cement as a by-product), or by converting the sulphur contained in pulverized gypsum into ammonium sulphate. Some sulphur is also recovered from the by-product gases in the manufacture of synthetic oil by coal hydrogenation and from blast furnace slag.

Leuna, the largest producer of sulphuric acid in the region and one of the four largest producers in Germany, obtains sulphur from the hydrogenation of coal and ammonium sulphate. The region's second largest producer, Wolfen, extracts sulphur by the Müller-Kühne process from gypsum mined in the Harz Mountains. Giesche Erben in Magdeburg, Mansfeldicher Kupferschieferbergbau AG, with plants in

Eisleben and Mansfeld, and a few other companies obtain sulphur as a by-product of lead, zinc, and copper smelting.

iv. Production and Consumption. Over 735,000 metric tons of sulphuric acid are produced in the Central Industrial Region annually. In peacetime the fertilizer industry was the leading consumer of sulphuric acid. Increasing requirements of the explosives and synthetic fiber industries and decreasing production of superphosphates and other fertilizers have altered the consumption. At present the available output is absorbed in roughly the following order:

Explosives
Synthetic fibers
Fertilizers
Metallurgical industry
Sodium and aluminum sulphate, copper and iron vitriol
Petroleum refining
Paints and pigments
Textiles
Tar and distillate washing.

Since most producers of sulphuric acid also produce other chemicals, the bulk of their output is used to satisfy their own demands. It is also the policy of producers to reduce transportation difficulties and costs through deliveries to near-by local consumers. As other chemical manufacturing areas such as the Ruhr Region and Ludwigshafen are located at a distance from the Central Industrial Region, it is probable that local production of sulphuric acid adequately supplies the normal requirements.

c. Nitrogen

i. General. Nitrogen is one of the most important war chemicals. A severe shortage of nitrogen in the explosives industry alone would cripple the German war machine. There is, however, no prospect of a shortage in Germany, due to the extensive activities of IG Farben in the International Nitrogen Cartel before the war. The large export quotas received from the Cartel enabled IG Farben to maintain the huge nitrogen plants at Leuna, south of Merseburg, in the heart of the Central German chemical producing district, and at Oppau, near Ludwigshafen. These two plants account for about 70 percent of the entire German nitrogen production, with over 50 percent at Leuna alone.

Between 1936 and 1938 it became evident that there was considerable excess nitrogen production above the amount that could be consumed or exported, and part of the facilities of some plants, notably Leuna, were turned over to the manufacture of synthetic gasoline and methanol, which could use the same equipment. Since the two substitute products became sufficiently vital to the war economy to continue or even expand production, between 10 and 25 percent (about 36 percent at Leuna) of the German nitrogen capacity was lost.

ii. Production. The outbreak of war consequently, found Germany with a nitrogen capacity insufficient to handle the greatly increased demands of the chemical industry if the output of nitrogenous products continued at pre-war capacity. Increased demands, amounting to about 170,000 MT a year, were met by curtailing the allocation of nitrogen to the fertilizer industry, previously its largest consumer. The extent of this shift is given below.

GERMAN NITROGEN CONSUMPTION
(in metric tons)

	1938	1942	Percentage change
Agriculture	750,000	575,000	-23
Industry	130,000	300,000	+113

These figures are particularly significant to the Central Industrial Region because of the large share of the total nitrogen producing capacity located at Leuna, as illustrated by the following statistics:

NITROGEN CAPACITY PRODUCTION PATTERN

	Germany (MT)	Leuna (MT)	Percentage German Production
Capacity	1,500,000	812,000	54
Production	847,000	475,000	56

"Leuna" is used in the table rather than the "Central Industrial Region" because the only other regional producer, Piesteritz, (near Wittenberg) has a small output of nitrogen.

Leuna manufactures a somewhat limited range of nitrogen compounds including ammonia (ca. 450,000 MT in weight of nitrogen content), nitric acid (ca. 300,000 MT of 56 percent strength) and a very large amount of fertilizers. All nitrogen made by Leuna is obtained first in the form of ammonia, but only a limited amount is used in this form. Some ammonia is shipped to neighboring plants where it is converted to fit the individual needs of the plants. Major consumers are:

	Amount in Metric Tons
IG Farben, Bitterfeld	10,000
IG Farben, Wolfen	10,000
Piesteritz	20,000

Destinations of other Leuna nitrogenous products are unknown, but the major uses nitrogen is put to are show below, along with the nitrogen compounds most apt to be used. All of the industrial uses given are either known or suspected to be employed in the Central Industrial Region.

MAJOR INDUSTRIAL USES OF NITROGEN COMPOUNDS IN THE CENTRAL GERMAN INDUSTRIAL REGION

Industry	Nitrogen compound most used
Explosives	Nitric acid, ammonium nitrate
Plastics, synthetic fibers, photochemicals	Nitric acid, ammonium, urea
Artificial fodder, stock-piles, or nitrogen reserves	Urea
Fertilizers	Ammonia, nitric acid, nitrate salts
Dyes and intermediates	Nitric acid

Nitric acid is the most important nitrogen compound because of its variety of industrial uses. It may be used as (1) a powerful acid, (2) an intermediate product in the manufacture of other nitrogen compounds, (3) merely as a vehicle for the nitrogen it contains. This explains the large industrial need for nitric acid, and the enormous consumption of it. Examples of the use of nitric acid may be found in reports on the industries mentioned.

iii. Raw Materials. As the Haber-Bosch process (which fixes atmospheric nitrogen) is used at Leuna, an unlimited source of raw material is readily at hand, and the raw material problem is narrowed down to power and water, both of which are accesible. It is therefore unlikely that Leuna has experienced any limitations in production from raw materials shortage. (See: Calcium Carbide, B 2 e)

d. Coal-Tar Derivatives.

i. General. Wartime pressure on German chemists to find substitutes for materials formerly imported has led to the establishment of an entirely new structure of industrial chemistry, based to a large extent on coal tars. Such industries as synthetic gasoline, synthetic rubber, plastics, explosives, and dyes, all dependent on coal-tar derivatives, have required the Germans to exploit their coal resources more carefully and systematically than ever before, in order that they be sufficient for both chemistry and heat or power.

The present complexity of coal-tar chemistry is due to two main points: (1) each type of coal yields a particular kind of tar, and (2) each tar varies in composition according to the method of preparation. The number of tars prepared industrially is limited, and their production is controlled to give the heaviest yield of industrially important derivatives. Three main types of tar are produced in Germany, each calculated to fill certain needs of the war economy. These tars with their principal components are shown below:

Products of Brown Coal Tar Distillation
(Total German production in 1943 - 2,000,000 MT.)

Gasoline, Diesel Oil	38%	Pitch	2%
Fuel Oil	32%	Coke	9%
Paraffin Wax	9%	Gas, Losses	10%

Products of the Low-Temperature (5-600°C)
Distillation of Bituminous Coal Tars.
(Total German production in 1942 - 150,000 MT.)

Light Oils	5%	Pitch	30%
Diesel Oils	5%	Gas and Losses	
Fuel Oils	50%		10%

Products of the High-Temperature (1000°C)
Distillation of Bituminous Coal Tars.
(Total German production in 1942 - 2,200,000 MT.)

Light Oils	1%	Phenol-Cresol	1.5%
Anthracene Oils	0.5%	Gasoline, Diesel Oil	
Napthalene Oils	6%		3%
Fuel Oils	18.6%	Wash Oils	2%
Creosote Oils	5%	Pitch	60%
		Gas and Losses	2.4%

The bituminous tars, and, to a small degree, brown coal tars are used throughout Germany, but they are usually distilled near the coal fields, and the semi-purified products such as bensol or toluol (See attached flow-sheet of coal-tar distillates) are shipped out. Thus the Ruhr is the source of most bituminous tars, while brown coal tars are produced in the Central Industrial Region.

ii. Production-Consumption. Discussion of the use of coal tar derivatives in the Central Industrial Region must include bituminous tars, though they are not produced in the region. The explosives, synthetic rubber, and dye industries of the Central Industrial Region consume large quantities of benzene, toluene, aniline, and other materials which are derived from the light and napthalene oil fractions of bituminous tars. All these materials must be imported into the region from the Ruhr.

Production figures for these chemicals are not available, but reports indicate that the consumption of many of them is equal to production. Measures to avoid waste were introduced in 1936, when the Überwachungstelle für Mineralöle (Control Agency for Mineral Oil Products) issued a regulation forbidding the commercial use of tars which had not been distilled up to 240°C. (Both light and napthalene oils would be recovered at this temperature). This regulation significantly does not apply to brown coal tars.

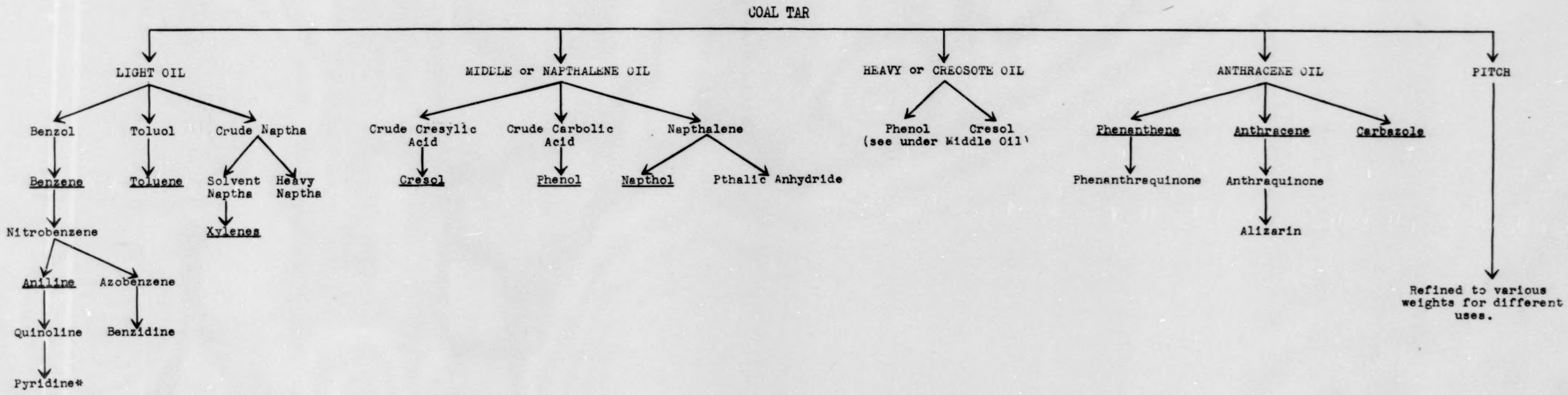
The supply of brown coal tars has always been adequate, as they are consumed chiefly by the synthetic gasoline industry and need to be treated for the gasoline oil fraction only. They are produced in Central Germany both at the coal mines and at the chemical plants.

Brown coal tars are not generally shipped over considerable distances to their consumers, as the synthetic gasoline industry is centered around the brown coal fields. Most of the major plants have a very short haul from the mines (about 6 km. at Leuna), although tar and coal may be shipped as far as seventy to eighty miles, as at Magdeburg.

iii. Factors of Production. The preparation, of fractional distillation, of bituminous coal tar to its primary derivatives such as bensol and cresol is essentially a simple operation, involving the gradual heating of the tar until its volatile components boil off. Each of the major derivatives is collected at its particular boiling point, and condensed back down to a solid or liquid. These derivatives are then redistilled until the desired products have been reached.

The only component of brown coal tar which is chemically valuable is the crude oil fraction. This can be recovered from the tar by the Fischer-Tropsch distillation process or it can be secured directly from the coal by the Bergius (hydrogenation) process, which forces hydrogen into the carbon bonds of coal, creating artificial hydrocarbons.

SIMPLIFIED FLOW SHEET FOR THE FRACTIONAL DISTILLATION OF COAL TAR (Bituminous)


COAL TAR
LIGHT OIL
Benzol
Benzene
Nitrobenzene
Aniline
Quinoline
Pyridine*
Azobenzene
Benzidine
Toluol
Toluene
Crude Naptha
Solvent Naptha
Xylenes
Heavy Naptha
MIDDLE or NAPTHALENE OIL
Crude Cresylic Acid
Cresol
Crude Carbolic Acid
Phenol
Napthalene
Napthol
Pthalic Anhydride
HEAVY or CREOSOTE OIL
Phenol (see under Middle Oil)
Cresol
ANTHRACENE OIL
Phenanthene
Phenanthraquinone
Anthracene
Anthraquinone
Alizarin
Carbazole
PITCH
Refined to various weights for different uses.

*Derived also from Crude Tar

____ Industrially important chemicals.

iv. Location. The two large gasoline synthesizing plants in the Central Industrial Region are at Leuna and Magdeburg. These are the only two using brown coal tars, but the dye plant at Wolfen, and plants producing paints, pharmaceuticals, explosives, and plastics use many bituminous coal-tar derivatives. The locations of the plants may be found in reports upon their respective industries. There are also many small plants in the region which are by now undoubtedly using some kinds of coal-tar derivatives in substitution for other materials in short supply.

e. Calcium Carbide

i. General. The recent upsurge in German calcium carbide production is the direct result of certain practices of the war economy: (1) the curtailment of synthetic nitrogen for use in fertilizers and the use of calcium cyanamide (a derivative of carbide) as a substitute fertilizer; (2) the use of cyanamide to fix atmospheric nitrogen to augment reduced Haber-Bosch facilities; (3) the increased synthetic rubber production in which carbide is an integral raw material; and (4) new wartime uses of chemicals derived from carbide. (See: Nitrogen B2c and Synthetic Rubber B4c).

The new importance of calcium carbide in the industrial economy of the Central Industrial Region is shown by the following figures.

Producer	Capacity (in 1,000 MT)	Percent of Central Industrial Region Capacity	Percent of German Capacity	Percent of Axis-Europe Capacity
Piesteritz	746	87.2	32.7	18.6
Schkopau	110	12.8	4.8	2.7
Central Industrial Region	856	100.0	37.0	21.4
Germany	2300	---	100.0	57.5
Axis Europe	4000	---	---	100.0

ii. Production. As the actual manufacture of calcium carbide is a simple process, consisting of combining coal and quicklime in an electric furnace (See attached flow-sheet for Calcium Carbide), the Germans were able to increase production by merely increasing the output of existing plants. The only new plant constructed for wartime use is located at Schkopau. Increased production, however, required new sources of electric power, since over 3000 kw. are needed to produce one ton of calcium carbide. The figures below show the relation between increased calcium carbide production and the additional amount of electric power brought into the Central Industrial Region.

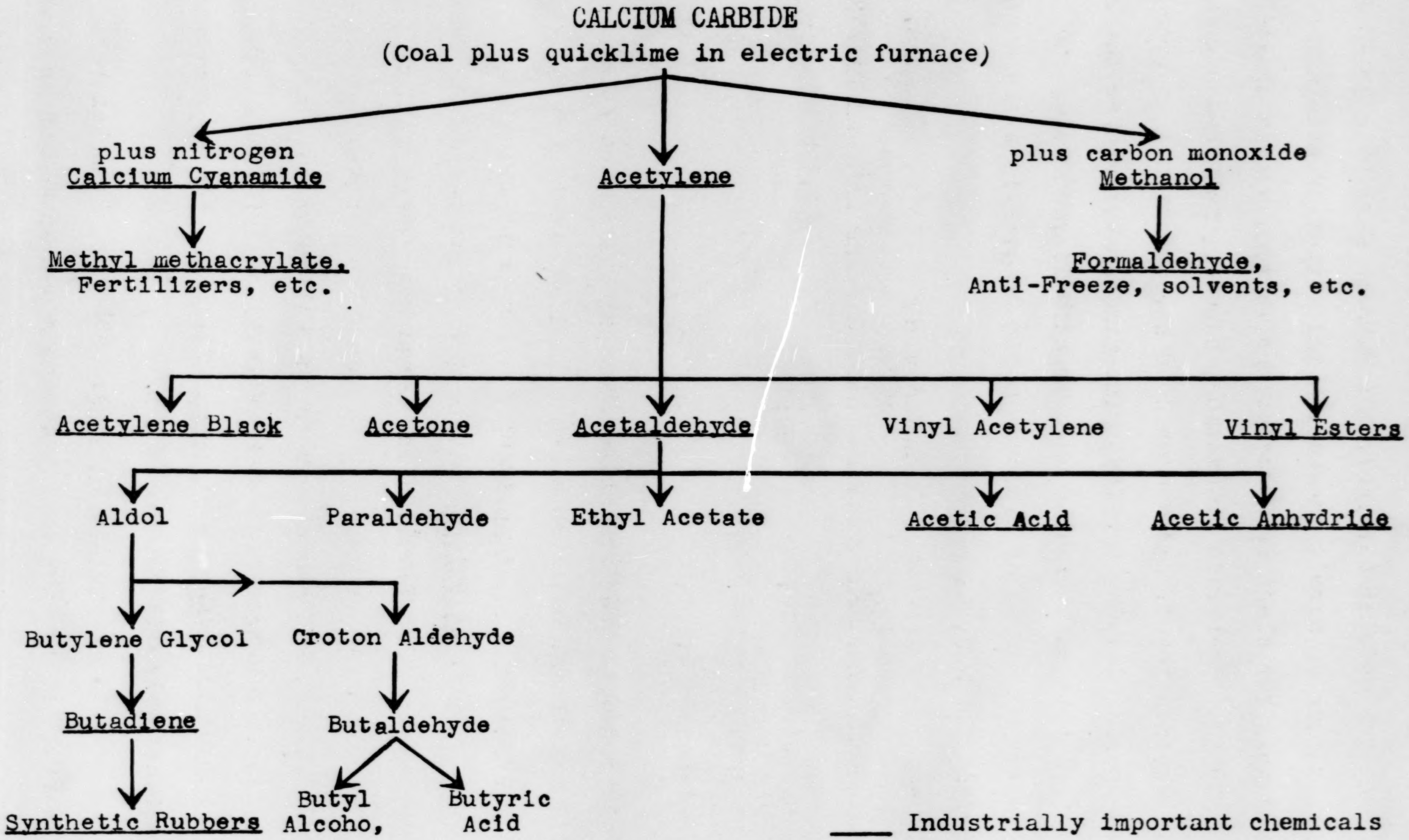
Plant	Pre-war Prod. in MT	Added power in kw.	Prod. increase in MT	Prod. increase percent
Schkopau	---	50,000	110,000	---
Piesteritz	350,000	180,000	396,000	113
Other German plants	764,000	230,000	506,000	66
Total German plants	1,114,000	410,000	902,000	81

Both Schkopau and Piesteritz draw power from the Zschornewitz power station, but Piesteritz also draws power from Vockerode and AG Sächsische Werke power stations near Leipzig.

iii. Location. Piesteritz is located on the north bank of the Elbe River, about three kilometers west of Wittenberg. It is serviced by the Wittenberg-Zerbst highway and railway, and has access to the Wittenberg-Bitterfeld railway. Schkopau lies about five kilometers south of Halle, on the Halle-Merseburg railway. These are the only calcium carbide plants in the region.

iv. Production Factors. Schkopau is relatively unimportant to the chemical industries of the region as a whole because its entire production is consumed by the Schkopau rubber plant. About two-thirds of the production of the Piesteritz plant is made into calcium cyanamide, with the

SIMPLIFIED FLOW SHEET FOR CALCIUM CARBIDE


CALCIUM CARBIDE
(Coal plus quicklime in electric furnace)
plus nitrogen
Calcium Cyanamide
Acetylene
plus carbon monoxide
Methanol
Methyl methacrylate,
Fertilizers, etc.
Formaldehyde,
Anti-Freeze, solvents, etc.
Acetylene Black
Acetone
Acetaldehyde
Vinyl Acetylene
Vinyl Esters
Aldol
Paraldehyde
Ethyl Acetate
Acetic Acid
Acetic Anhydride
Butylene Glycol
Croton Aldehyde
Butadiene
Butaldehyde
Synthetic Rubbers
Butyl
Alcoho,
Butyric
Acid
Industrially important chemicals

remainder divided among other chemicals. The main products derived from calcium carbide are shown on the flow-sheet. Besides calcium carbide, Piesteritz also produces most German phosphorous.

3. Commercial Chemicals.

a. Potash.

i. General. During the decade preceding the first World War, Germany held a virtual monoply in the international potash trade, which was predicated upon the fact that, although other nations had large potash deposits they were largely unknown and unexploited. This dependency upon Germany's potash gave her a potent economic bludgeon, which she used effectively to promote favorable trade relations with dependent nations.

The first World War, however, changed this situation by eliminating Germany as the major source of supply. Many nations, forced to find other sources, discovered indigenous deposits, which have been gradually developed until at the present time the United States is self-sufficient, and have even developed a considerable export trade, while the USSR has large deposits in the process of development. It is thus unlikely that Germany can ever regain her position in the international potash trade, though she will undoubtedly remain the main source of European supply.

ii. Importance. Potash is, technically, a naturally occurring mineral salt containing potassium oxide (K_2O), which is its effective fertilizing component. Its use in fertilizers has become essential since the European system of intensive agriculture has depleted the natural fertility of the soils, and several million tons are used for this purpose every year. German potash beds are intermixed with other mineral salts, principally common salt, or NaCl.

The foregoing can be construed as bearing directly upon the Central Industrial Region, as the main German potash beds lie in the region, and, with the exception of some of the more technical refining operations, most of the actual mining, refining, and distributing operations are also centered in the region.

iii. Location. The German potash deposits embrace a potentially productive area of approximately 24,000 square miles, of which about 600 square miles are now being worked. Generally, the deposits encircle the Harz mountains, and extend north and south under the Hannover lowlands and upper Thuringia. Certain individual locations have become noted as producing areas, notably the Hannover, Harz, Werra-Fulda, and Halle-Mansfeld districts in the Central Industrial Region. The important mines with their production are listed in Table 40.

Due to certain chemical and geological facts the potash beds overlie beds of natural salt ($NaCl$), and both are of uneven depth and thickness. Thus the potash lies from 600 to 4000 feet below the surface, and varies from thirty to about 200 feet in thickness, with $NaCl$ and other salts underlying it. This irregularity makes it difficult to judge the potential reserves which have been estimated at 72,000,000,000 short tons, containing about 13 percent K_2O for the 600-square-mile producing area.

iv. Extractive Processes. There is no information that Germany employs any of the modern extractive processes now used in this country, by which the salt is dissolved below the ground and pumped to the surface as brine. This is probably due to the age of the German mines, many of which have been in operation for years, and to the nature of the deposits, which permits horizontal mining by the room-and-pillar method. The main difficulty in this type of mining is the danger of flooding by subterranean waters. Flooding has put several of the most productive German mines out of commission in the past, and if pumping and protective measures are not constantly maintained in operation, could easily cripple German production.

v. Industrial Controls. The organization of the German potash industry shows a somewhat turbulent history, with considerable intermingling of government control and private enterprise. The present situation of complete cartelization based in three major firms is the result of a government policy to encourage the formation of strong industrial combines. Ordinances forbid certain unproductive mines from operating. This culminated in the resuscitation by the Nazis of an old cartel, and making membership compulsory. Thus the enormous financial gains from potash have been concentrated in a few firms, which have subsequently entered other fields of industry with the capital so gained.

The three controlling interests in German potash today are; the Wintershall combine, with its subsidiaries; the Salzdetfurth combine; and the Prussian government combine, Preussag. There are two other potash concerns - Kali-Chemie, which is partly controlled by Wintershall, and the Deutsche Solvay-Werke, which is closely connected with Salzdetfurth. This organization now appears to be stable, containing within itself the entire production quotas allowed by the government controlled Kali-Syndikat.

vi. Factors of Production. Potash mining has undergone certain sweeping changes under government control. Production has been centered in the most productive mines, while others have been abandoned. This was done partly to reduce the great surplus of shafts sunk around 1930, and partly to concentrate production in the most efficient mines.

Despite this measure, the general efficiency of German potash mines has steadily been decreasing. While overall production has remained relatively stable, employment and power consumption have increased substantially. The concentration of production in the more efficient mines may achieve labor saving, but there is a likelihood that the abandoned mines will be flooded and rendered unfit for future production.

Table 40. POTASH MINES IN THE CENTRAL INDUSTRIAL REGION

Concern	Constituent Company	Name of Works	Location	Output of Crude Salts (000 tons) 1937
Wintershall	Wintershall, AG Berlin Gew. Wintershall	(35 mines in all)	(35 mines in all)	Not Known 1,302,405
Burbach	Burbach-Kaliwerke AG, Magdeburg	Königshall-Hindenburg	Reyershausen	
		Siegfried-Giesen	Gr. Giesen	
		Volkenroda	Menteroda (12 km NW of Mülhausen)	
		Krügershall	Teutschental (10 km NW of Merseburg)	1,645,000 1/
	Gewerkschaft Burbach, Beendorf	Kaliwerk	Beendorf (8 km NW of Helmstedt)	
Preussag	Preuss-Bergwerks-u Hütten, AG	Kaliwerk Stassfurt	Stassfurt	299,000
		Kaliwerk Bleicherode	Bleicherode	929,000
		Gew. Baden	Buggingen (25 km. NE of Mulhausen)	312,000
	Anhaltische Salzwerke GmbH, Leopoldshall	Gewerkschaft Markgräfler	Buggingen (25 km. NE of Mulhausen)	193,000

1/ Less now probably as first mine was flooded.

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Table 40. Potash Mines in the Central Industrial Region (continued)

Concern	Constituent Company	Name of Works	Location	Output of Crude Salts (000 tons) 1937
Kali-Chemie	Kali-Chemie AG Berlin	Friedrichstall	Sehnde (20 km N of Hildesheim)	279,000
		Ronnenberg	Ronnenberg (15 km S of Hannover)	246,000
	Gew. Neu-Stassfurt Löderburg			
Salzdetfurth	Ver. Kaliwerke Salzdetfurth AG Berlin	Salsdetfurth	Bad Salzdetfurth (SE of Hildesheim)	
		Aschersleben	Aschersleben	
		Sollstedt	Sollstedt	
		Hansa	Empelde	
Salzdetfurth	Bergbauges Mariaglück GmbH Höfer			5,000
	Alkaliwerke Westeregeln GmbH Westeregeln			25,000
Solvay	Deutsche Solvay-Werke AG Bernburg			417,000

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b. The Photochemical Industry.

i. General Importance. The photochemical industry of the Central Industrial Region is almost completely concentrated in the Agfa Photochemical Plant of IG Farben in Wolfen. With an output of 90 percent of Germany's roll and motion picture film and 60 to 70 percent of her total commercial film output, this plant is by far the largest in Europe, surpassing in capacity the combined total of all other pre-war European film works.

ii. Finished Products and Raw Materials. The principal output of the photochemical industry is photographic film in its many varieties, including all kinds of commercial film, medical X-ray and infra-red film. All film, regardless of its final photographic properties, is produced in a four-stage production process, involving the following steps: (1) preparation of the film base, (2) preparation of the photographic emulsion from nitrates, chiefly silver nitrate, (3) coating of the emulsion on the base, and (4) the final processes of slitting the film into strips, perforation, marking, examination, and packaging.

Production of the film base is a process carried out exclusively in the Agfa Wolfen plant and in the Eilenburg Celluloid Works, another IG Farben subsidiary, located about fifteen miles southeast of Bitterfeld. Consequently, German and much of the European film production is dependent upon these two works for its film base supply.

Most of the raw materials of the photochemical industries are produced by chemical plants within the Central Industrial Region, the only exceptions being camphor and gelatine.

The following table indicates the type and quantities of raw materials, that enter into the production of films:

RAW MATERIALS USED BY AGFA WOLFEN PLANT DECEMBER
1938 TO NOVEMBER 1939

Material	Quantity (pounds)	Source
Nitrocellulose	4,000,000	IGF Reinsdorf and Eilenburg Celluloid Works
Acetylcellulose	1,400,000	IGF Dormagen plant
Silvernitrate	484,000	IGF Agfa Wolfen Plant (from Silver)
Potass. bromide	333,000	IG Wolfen Dye plant from abraum salts
Acetone	1,000,000	IG Wolfen and Bitterfeld Dye Plants
Ethyl alcohol	1,320,000	IG Wolfen and Bitterfeld Dye Plants
Methanol	1,600,000	IG Wolfen and Bitterfeld Dye Plants
Sulphic ether	1,152,000	IG Wolfen and Bitterfeld Dye Plants
Gelatine	200,000	IG Gelatine plant in Schweinfurt
Synth. camphor	200,000	Schering-Kahlbaum, Berlin plant

Nitrocellulose, the principal raw material in the making of nitrate film base, is a substance very similar to, though less explosive than guncotton. To free quantities of this material for war purposes, the German government ordered in 1938 a change from nitrate film base to acetate film base. According to recent British tests of captured film, however, it seems probable that this regulation is not generally being complied with.

Since most of the other principal raw materials -- especially acetylcellulose, acids, and solvents -- are also important raw materials for war purposes, there has probably been a reduction in film production since the outbreak of war. As substitute raw materials, wood cellulose, produced in the Wolfen synthetic fiber plant, replaces cotton linters in the production of nitro- and acetylcellulose, and synthetic solvents produced in various IG Farben plants, are now used for most purposes.

iii. Capacity, Production and Consumption. Output of the photochemical industry of the Central Industrial Region for the period December 1938 to November 1939 (the latest period for which figures are available) may be summarized as follows:

Various commercial and aerial film varieties	645,000,000 ft.
Other film varieties (inc. X-ray safety film)	52,000,000 ft.
Amateur filmpacks	740,000 packs
Chemicals	1,725,000 packages
35-mm. color film	938,300 packages
Daylight loading film	275,000 loadings

With an output of this size, the Germany industry produced a far greater volume than the German market could absorb. In peacetime a great part of this output entered into foreign trade.

War has affected the industry chiefly by increasing the military demands for films for survey and mapping purposes, ground and aerial reconnaissance photography, and for detecting camouflage, and determining the depth of water through the use of infra-red and color-film. "Klarschiebeinfilm", resembling isinglass, is used as material for eyepieces in gas masks. The increased consumption of film for military purposes has probably been met through drastic reduction of non-essential civilian use.

The total number of employees at the Agfa Wolfen plant increased from 2,286 employees in January 1937 to 3,539 in August 1939, than dropped back to 3,355 in November 1939.

c. Paints And Dyes

1. General. Dyes and paints, while kindred substances, provide an interesting industrial contrast in Germany. Dyes have come under the exclusive monoply of IG Farben, which increased production far above internal needs. As a result, Germany became the largest dyes producer in the world, accounting for one-third of world output and exporting over one-half of its own production. IG Farben centered the dyes industry in a few major plants, including the Wolfen

plant in the Central Industrial Region. Paints, on the other hand, were normally produced by several thousand plants throughout Germany, whose total output provided only a small margin for export.

Extreme decentralization and individual small production in the paint industry, combined with a shortage of several basic raw materials, made the economic pattern of the paints industry unsatisfactory for total war because: (1) it is impractical to produce synthetic substitutes for scarce natural raw materials in small quantities, and wartime limits on transportation make their wide distribution unfeasible; (2) small plants feel the shortage of manpower more acutely than large ones; and (3) controls on quality and general procedure are difficult to maintain. Consequently, it is probable that controls have been established and the industry centralized.

ii. Location. Dye plants in the Central Industrial Region are restricted to the large IG Farben plant at Wolfen, which is entirely separate from the photo-materials and synthetic fiber works located there. The dye plant is situated three kilometers northeast of Bitterfeld, along the main Bitterfeld-Dessau railway line just southeast of Wolfen. The location of the main paint plants in the Central Industrial Region (and their products) are listed below.

Plant	Location	Product (and annual production where known)
Carl Hans Blume	Magdeburg	
Arzberger Schöpff	Eisenach	Prussian Blue pigments
Unterharzer Berg- u. Hüttenwerke	Oker (Harz Mts.)	Zinc oxide paints 5-6000 t.
Mansfeld AG Werk-Kupferkammerbleihütte	Hettstedt	Zinc oxide paints 1000 t.
Werk Hans Heinrich-Hütte Metallgesel. AG	Langelsheim (near Goslar)	Zinc oxide paints
Chemische Fabrik-Marienhütte GmbH	Langelsheim	Lithophone paints 5000 t.

iii. Finished Products. IG Farben has regimented its dye plants in such fashion that each plant handles only certain groups of dyes or dye intermediates. Accordingly, Wolfen produces part of the vast range of Azo dyes in conjunction with the IG Farben plants at Höchst and Leverkusen; part of the Sulphur Black dyes in conjunction with Höchst; and the special Ursol dyes for furs. Its total yearly pre-war production was about 10,000 tons, or about one-eighth of total German production. Since the inception of war, such luxury products as the Ursol dyes and a considerable range of the Azo dyes have probably been discontinued, in order to increase the output of the more strictly military dyes. Since the raw material supply has remained adequate, other changes are unlikely.

Paint production has had to be somewhat altered, because drying oils for paints and some pigments are short. As a result substitutes such as non-drying and synthetic oils have come into use. The transition has been eased by limiting the color range to the more strictly military colors, and by changing oil paints to oil emulsion paints, in which part of the oil is replaced by water and the remaining oil emulsified. Some pigments, notably the titanium oxides which have to be imported from Norway, are now difficult to obtain but most of the metallic pigments are available to Germany, and new pigments are constantly being discovered in the manufacture of synthetic plastics. Although paint processing chemicals, such as nitric acid, sulphuric acid, caustic soda, chlorine, soda ash, and sodium nitrate, are required by war industries, it is unlikely that shortage has been serious enough to reduce paint production below regional requirements.

d. Pharmaceuticals. Germany's pharmaceuticals industry has undergone sweeping changes since the inception of war:

although the total output of pharmaceuticals has increased some 2,000 "dispensable" products which were the main foundation of her huge international trade in medicinals were largely withdrawn from the market in 1942, and plants with small output may have been discontinued in accordance with wartime Nazi economic practice. Such discontinuance is possible because the recent drop in the quantity and quality of German medicinals is due to a lack of suitable raw materials and skilled technicians, and not to insufficiency of manufacturing facilities. Elimination of small plants, such as those in the Central Industrial Region would have enabled the Nazis to shift technicians to the large firms of Bayer or Merck, where their individual effectiveness would be much greater.

The extensive cartelization of the industry among such extra-regional plants as Bayer, Merck, and Schering, has resulted in an economic strangulation of smaller plants, and thus the plants of the Central Industrial Region had no chance to attain production levels which would justify their remaining in operation under total mobilization of industry. It is, than, very likely that many or all of the pharmaceutical plants named below have by now either been closed down or shifted to other materials.

Location	Owner
Bernburg	Deutsche Solvay-Werke AG
Braunschweig	Chininfabrik Braunschweig Buchler AG
Braunschweig	Diedr. Buschmann-Wilh. Kahlert
Braunschweig	Orbis Werke AG
Braunschweig	Chemische Fabrik "Velchelde" GmbH
Eisenach	Prof. Dr. Froehlich & Sohn
Erfurt	Chemische Fabrik Devag GmbH

Of these seven plants, only Chininfabrik Braunschweig Buchler AG is of importance. It is possible that these plants may have special medicinals in production, which would increase their importance.

e. Fertilizers.

i. Importance. Nitrogen, potash and phosphorus are the three primary fertilizing elements required for crop production. Since all three elements are essential to plant growth, a lack of one type of dressing cannot be balanced by increased use of other types. In peacetime the fertilizer industry in the Central Industrial Region produced a surplus of nitrogenous and potash fertilizers for export, after adequately meeting its own regional requirements. Supplies of nitrogen for fertilizers have decreased during the war, but nitrogenous as well as potash fertilizers are still produced in quantities more than sufficient to meet regional agricultural needs. The supply of phosphorous fertilizers, however, is inadequate and as natural phosphates are scarce throughout Axis Europe, they cannot be imported from conquered and occupied countries. Two of the most important agricultural crops of Central Germany, sugar beets and potatoes, as well as other root crops, are especially heavy consumers of phosphates. Lack of sufficient phosphates, however, did not affect crop productivity for two or three years, but has probably by now become a serious factor.

ii. Location. Numerous fertilizer plants are scattered throughout the region northeast and east of the Harz mountains, with large scale production of nitrogenous fertilizers concentrated in Leuna and Wolfen, phosphate fertilizers in Piesteritz and Magdeburg, and potash fertilizers in Stassfurt, Bernburg and Bleicherode. Table 41 lists the chief fertilizer plants in the region and type of product manufactured.

iii. Raw Materials.

(1) Potash. As the world's most abundant deposits of potash occur in the Central Industrial Region,

Table 41. CHEMICAL FERTILIZER PRODUCERS IN THE CENTRAL INDUSTRIAL REGION, 1938-1939

Company	Location	Type of product
IG Farben	Leuna	Nitrogenous fertilizers with no phosphorus or potash ammonia sulphate) 80 calcium nitrate) percent Leuna saltpeter)production sodium nitrate kalkammonsaltpeter
		Nitrogenous fertilizers with potash and/or phosphates diammonium phosphate Leunaphos kaliammonsaltpeter nitrophoska
	Wolfen	Nitrogenous fertilizers
	Piesteritz	Nitrophoska and other nitrogenous fertilizers
Fahlberg-List AG	Magdeburg	Superphosphates
Mitteldeutsche Superphosphatwerke GmbH (subsidiary of Fahlburg List AG)	Köthen Dodendorf (nr. Magdeburg)	Superphosphates
Kaliwerke Aschersleben	Aschersleben	Potash
Deutsche Solvaywerke Aktienges	Bernburg	Potash salts
Gewerkschaft Neusollstedt	Bleicherode	Potash
Kaliwerke Sollstedt	Bleicherode	Potash
Anhaltische Salzwerke	Stassfurt	Potash salt
Julius Grosse	Oschersleben	Superphosphates
J. G. Klamroth	Halberstadt	Phosphate and other types
Duve, Sohn, G.F.	Osterwieck (Harz)	Superphosphates
Chemische Werke vorm P. Römer & Co. AG	Nienburg	Superphosphates
Kaliwerke Salzdetfurth	Bad Salzdetfurth	Potash salts
Dr. Weiser	Halle	Not known
Gewerkschaft Burbach	Helmstedt	Potash salts
Burbach Kaliwerke	Magdeburg	Potash salts

there is no difficulty in meeting fertilizer requirements.

(2) Nitrogen. The three chief sources of nitrogen in order of importance, are (1) ammonia, produced synthetically from the air, (2) cyanamide, and (3) ammonia produced as a by-product of blast furnaces and in the manufacture of coal gas. The IG Farben plant at Leuna, which produces ammonia from atmospheric nitrogen, is the foremost manufacturer of nitrogenous fertilizers in the world. Since the war, the supply of nitrogen available for fertilizers has decreased, because some of Leuna's nitrogen capacity has been converted to production of synthetic oil and because a large part of the nitric acid manufactured has been diverted to the explosives industry. Leuna, however, still sends ammonia to Bitterfeld-Wolfen and Piesteritz for the production of fertilizers.

(3) Phosphorous. The pre-war sources of phosphoric acid were basic slag, a by-product of the Bessemer process of steel production, and phosphate rock from which superphosphates are made by grinding the rock and treating it with sulphuric acid. Except for the almost negligible mining of phosphate rock in the Lahn River Valley in western Germany, all rock phosphates were imported from French North Africa (over 50 percent), United States and the USSR. During 1941, about one-half of the Russian and a part of the North African imports were used at Piesteritz to make nitrophoska and other compound fertilizers. With foreign supplies cut off, basic slag has become the only source of phosphorus but production is insufficient to meet regional requirements. Furthermore, the use of increasingly low grade iron ore necessitates a greater use of fluorspar, which decreases the solubility of the phosphate in slag from 80 to less than 40 percent. Since the effectiveness of basic slag as a fertilizer depends upon the solubility

of the phosphorus, the shortage of phosphate fertilizers has become increasingly acute.

iv. Production and Consumption. Since statistics for the production of fertilizers in the Central Industrial Region are not available, only rough estimates can be made. Of the 713,500 MT of synthetic nitrogen consumed by agriculture in Germany in 1938-39. betweem 45 amd 65 percent was produced at Leuna. By 1942-43 the total amount of nitrogen consumed for agriculture had dropped to 549,000 metric tons, and Leuna's fertilizer production has probably decreased proportionally. German production of potash for fertilizers amounted in 1938 to about 1,250,000 MT, the greater part of which was converted into fertilizer within the Central Industrial Region. Although there has been a considerable reduction in output of the fertilizer industry in the region, nitrogen and potash fertilizers are still being produced in quantities sufficient for export. Superphosphates and compound fertilizers containing phosphorus are either no longer being made or are being made in negligible quantities.

Limitations placed on the use of phosphate fertilizers at the beginning of the war (40 percent of 1938 consumption) have now been further restricted to 27 percent. In peacetime, the consumption ratio of chemical fertilizers was roughly two parts nitrogen to three parts potash and two parts phosphorus. It has now been changed to three parts nitrogen to nine parts potash and two parts phosphorus.

v. Transportation. Normally all shipment takes place during the comparatively short spring and fall fertilizing periods, with resulting transportation problems. With the additional strain placed upon the transportation system by wartime demands, the problem of distributing fertilizers at the time needed has become more complicated and difficult.

f. Wood Pulp Industry.

i. General. The IG Farben Wolfen wood pulp plant, located five miles northwest of Leipzig near the Mulde River, and Gebrüder Dietrich, situated on the Saale River at Merseburg, are the only large producers of wood pulp in the Central Industrial Region. Characteristic of these two plants, as well as of practically all other major wood pulp plants in Germany, is their location near a river providing an abundant water supply. The wood pulp industry, more than any other chemical industry, requires water in large amounts for hydroelectric power, as a means of transportation (especially for the delivery of raw materials), as a raw material in processing, and for the disposal of waste liquors.

ii. Finished Products and Raw Materials. There are two main types of wood pulp, chemical and mechanical. Chemical pulp consists of wood which has been chemically treated to yield cellulose fibers free of impurities. Mechanical pulp retains all the original substances in the wood including non-cellulose elements. Pure mechanical wood pulp is seldom used industrially. Combined with chemical pulp it is chiefly employed in the manufacture of newsprint, and cheap printing and wrapping paper. Mechanical pulp is vastly inferior in importance to chemical pulp. Chemical pulp, besides providing a raw material for the paper industry, supplies the cellulose used in the manufacture of rayon and staple fiber, explosives, plastics, and photographic film.

Chemical pulp is produced by three different methods in Germany, of which two are used in the Central Industrial Region. These are the sulphite process, employed by both the Wolfen and Merseburg plants, as well as in a large percentage of all German plants, and the nitric acid process which has only recently been introduced in Germany. No other processes are employed in the region.

The sulphite process converts long-fibered woods of low resin content -- chiefly spruce, hemlock and pine -- into pure cellulose and produces industrial alcohol as a by-product. As German motor fuel is a mixture of gasoline and industrial alxohol, this process is highly important for the fuel economy.

Chemicals entering into the sulphite process, such as carbon bisulphide, caustic soda, chlorine, and sulphuric acid, are all manufactured in large quantities by near-by chemical concerns. It is not certain whether the local supply of timber is sufficient to meet Dietrich's requirements or whether wood low in resin content must be imported from outside the region. The Wolfen wood pulp plant, however, in 1938 changed from the use of pine wood imported from Norway and Sweden to the use of beech wood from the Harz Mountains when it put into operation a new and expanded artificial fiber plant.

The nitric acid process, also used in the Wolfen plant, was developed by IG Farben for producing a superior cellulose particularly suited for rayon and staple fiber, by utilizing short-fibered beech wood, Germany's most abundant timber. This process does not yield alcohol as a by-product.

iii. Regional Importance. Wood pulp production of the Central German Industrial Region amounts to about 6 percent of total national output. The Wolfen plant, producing about 50,000 MT per year and Gebrüder Dietrich, producing 40,150 MT of chemical pulp and 3,650 MT of mechanical pulp (1938 figures), probably provide enough wood pulp to meet the needs of the Wolfen rayon industry. Production, however, is not sufficient to meet other regional industrial requirements.

4. Synthetics.

a. Synthetic Fibers.

i. Importance. Over 70 percent of Germany's pre-war textile requirements were met by oversea imports of natural fibers, the remainder being supplied by production of synthetic fibers and a small domestic production of wool, hemp, and jute. Upon the outbreak of war the textile industry was faced with additional military and industrial needs that had to be satisfied despite a severe loss of imports. These demands have been met by a strict rationing of textiles for civilian consumption, and by a tremendous increase of synthetic fiber production.

In order to achieve a degree of national self-sufficiency Germany had planned and initiated before the war and since 1939 has intensified a program for expanding the synthetic fiber industry by enlarging some of the existing plants (as at Wolfen) and building new ones in various regions of the country.

The IG Farben plant at Wolfen is the only synthetic fiber plant in the Central Industrial Region. This one plant, however, is a vital part of Germany's war economy as its annual production of around 50,000 metric tons accounts for about one-tenth of total German synthetic fiber production. Wolfen is also important as the center of all IG Farben experimental work on artificial fibers.

ii. Finished Products and Raw Materials. Synthetic fibers are of two main types, staple fiber and rayon, which together account for about 95 percent of total German synthetic fiber output. Both types of fiber are manufactured at Wolfen in the ratio of about three-fourths of staple fiber to one-fourth rayon. This ratio is typical of the total German production of these two types of fibers.

Synthetic fibers are used either alone or with natural fibers for a variety of military and civilian goods such as clothing, tires, parachute cloth, wire insulation, rugs, blankets, ropes, etc. In addition to standard types, Wolfen produces a high grade fiber used for parachute manufacture.

Cellulose, the basic raw material used in staple fiber and rayon manufacturing, is supplied from the Wolfen wood pulp plant built in conjunction with the synthetic fiber plant in 1938. Other chemicals entering the production process such as carbon bisulphide, sulphuric acid, and metal sulphates are either supplied from other IG Farben plants in the area (Leuna and Wolfen-Bitterfeld) or are shipped by tank car from IG Farben plants at Ludwigshafen and Leverkusen.

These raw materials are transformed into synthetic fibers by the viscose process which is used for about 87 percent of world production of rayon and staple fiber. In this process cellulose is reduced by the aid of chemicals to a sticky solution which is extruded through small nozzles containing minute holes into a spinning bath, where it is coagulated into filaments. Staple fiber and rayon production are basically the same up to this point. The rayon filament emerges from the spinning bath as long continuous thread which after washing, purifying, and bleaching is ready to be woven into cloth. For staple fiber the filament is cut into one- to four-inch lengths, which after separation by floating in water, are dried and fluffed into fleece. Unlike rayon, staple fiber must be spun into thread before weaving.

iii. Consumption. Although Wolfen has about 300 machines in operation for spinning staple fiber into thread, the bulk of synthetic fiber production is probably shipped to near-by textile mills for spinning and weaving. It is likely that some of Wolfen's output is also shipped to Land Sachsen, where the heavy concentration of textile manufacturing has been increased by new plants moved from western Germany during the war.

iv. Labor. Including employment in the wood pulp plant, Wolfen employs 15,000 workers on a three-shift basis. Men are used for heavy and technical work while women are employed in the spinning rooms and in lighter routine jobs.

b. Synthetic Petroleum.

i. Importance. Before 1934 there were only four companies producing synthetic petroleum in Germany, and their production was on little more than an experimental basis. Three of these companies used the Fischer-Tropsch process discussed below, and the third, IG Farben at Leuna, had begun production by the Bergius method. Because the pre-war synthetic oil industry was in a state of progressive development, 1936-38 statistics give little indication of the current output of the industry. By 1939 production was in the neighborhood of three million tons of synthetic oil a year, of which about 20 percent were produced in the Central Industrial Region. Although the over-all production has practically doubled since 1939, between 15 and 20 percent of the total German production of synthetic oils is still manufactured in the Central Industrial Region. The following illustrates the relative importance of oil production in the region.

POSITION OF CENTRAL GERMAN INDUSTRIAL REGION IN TOTAL GERMAN AND AXIS OIL PRODUCTION[1]

	1938	1941
Percentage of German synthetic oil production	42	14.55
Percentage of German oil prod. (syn. and natural)	2.6	7.2
Percentage of combined Axis syn. & crude oil prod. (1938 figures include imports)	0.65	5.3

[1] Estimate.

ii. Location. There are only two synthetic petroleum plants properly within the Central Industrial Region, although several more fringe its borders. These two are the IG Farben-industrie plant at Leuna, and the Braunkohlen-Benzin AG (BRABAG) No. II plant at Magdeburg, both situated over extensive brown coal resources.

The BRABAG II plant at Magdeburg was erected in 1936 as part of a program under which the German government created and partially subsidized BRABAG to expand the German synthetic petroleum industry. It is situated on the Mittelland Canal a few kilometers north of Magdeburg, opposite a city-owned coke plant, and a zinc smelting plant. The IG Farben plant is a part of the concentration of chemical industries at Leuna.

iii. Finished Products and Raw Materials. A complicated war machine requires a wide range of different motor fuels, and the process of refining petroleum is such that many of these different fuels may be produced by varying the process in the latter stages, or by incorporating other chemicals into the end-product. Consequently, it is extremely difficult to estimate the finished products turned out by a large plant.

The type of oil produced may easily be varied with the changing requirements of the war machine. It is possible that the production of Diesel fuel has been greatly increased, as this type of fuel obviates many of the final refining stages of gasoline, and hence would increase production capacity. It is estimated that the German army uses roughly one Diesel engine to every five gasoline engines.

The basic source of synthetic petroleum is brown coal. Some oil is produced from hard coal in the Rhine-Ruhr region, but the main seat of the industry is on the three great brown coal fields, one of which underlies the Central Industrial Region.

Synthesis of petroleum is accomplished by two widely used processes -- the Fischer-Tropsch process of the destructive distillation of brown coal, and the Bergius (IG Farben) process of the hydrogenation of brown coal. Though these processes give identical end-products, their economic production requires different plant establishments (See: Coal Tar Derivatives VIII - B2d).

The Bergius process, to be practical, must be carried on in plants having a capacity of at least 400,000 tons a year. This entails a vast establishment, and the quantity of by-products make it worthwhile to set up by-processes. These plants must also be located near brown coal reserves, as the immense tonnage used makes it impractical to transport it from any considerable distance. (It is estimated that Leuna uses 22,000 tons of coal a day, or about 7,500,000 tons a year.)

The Fischer-Tropsch plants are not so large, and the synthesis is sometimes broken down into two stages -- the manufacture of coal tar by the destructive distillation of coal and the final processing of the tar to produce oil. The coal is destructively distilled at or near the coal fields, often at the mines themselves, and the tar produced is shipped on to another plant for final processing. This results in economy of shipping space, as the tar bulks far less than brown coal, and a degree of mobility in selecting the location of the final-process plants, which need not be as near their source of raw material as in the case of the Bergius plants. The BRABAG II plant at Magdeburg, for example draws its coal tar from the three Deutsche Erdöl plants at Regis, Breitingen, and Rositz (all about ten kilometers south of Leipzig) and from the "Kraft" mine at Deutzen; Magdeburg draws the great bulk of its raw materials from an area about seventy-five miles away, whereas Leuna draws most of its raw materials from the immediate vicinity, as both processes are carried out in one plant.

iv. Capacity and Production. The total regional production of synthetic oils in the Central Industrial Region for 1942 was about 800,000 MT, which represented about 15 percent of total German production. The BRABAG II plant was originally designed to produce 150,000 tons a year, but this has been increased to about 250,000 MT. Although the Leuna plant has been estimated as producing as much as 600,000 MT, 550,000 MT is probably more nearly correct. Recent information indicates that production of allied chemicals at Leuna has been curtailed in order to increase petroleum output. Many installations for producing synthetic ammonia have been converted to petroleum, as equipment for certain stages of both processes is very similar.

v. Power and Transportation. The BRABAG II plant draws its power from a plant connected with a city-owned coke plant directly across the Mittelland Canal. Magdeburg is a railway junction, with good connections to Berlin, Braunschweig, and Halle. There are also connections with the Elbe River, and the Mittelland Canal, which provide excellent transportation media.

c. Synthetic Rubber.

i. Importance. There is but one synthetic rubber plant in the Central Industrial Region - the IG Farben synthetic rubber works at Schkopau, in the vicinity of Halle. This one plant, however, is the greatest single producer of synthetic rubber not only in Germany, but in all of Axis Europe. Its estimated capacity of 100,000 metric tons annually, is sufficient to meet almost half of the total rubber requirements of Axis Europe. The Schkopau plant, covering an area of 17,500,000 sq. ft., of which 11,000,000 sq. ft. are actually built up, is reported to give employment to between 15,000 and 20,000 workers and is one of the recent large-scale chemical developments of the region.

ii. Finished Product. The term "synthetic rubber" is to some extent misleading, implying an equivalent to natural rubber produced by means of chemical synthesis. Actually "synthetic rubber" includes a wide variety of plastics, possessing properties such as elasticity, resiliency, and flexibility that closely resemble the same properties existing in natural rubber. Such "synthetic rubbers" and rubber-like substances are produced from various basic raw materials -- notably coke, petroleum and starchy farm products such as grain and potatoes -- by means of widely divergent chemical processes (See attached flow-sheet for Synthetic Rubber). The end products possess in varying degrees some of the properties of natural rubber, but never the complex combination of all the properties inherent in natural rubber. For this reason, no single type of synthetic rubber can be utilized for all the various purposes served by natural rubber. Each type of synthetic rubber has special and rather narrowly circumscribed uses.

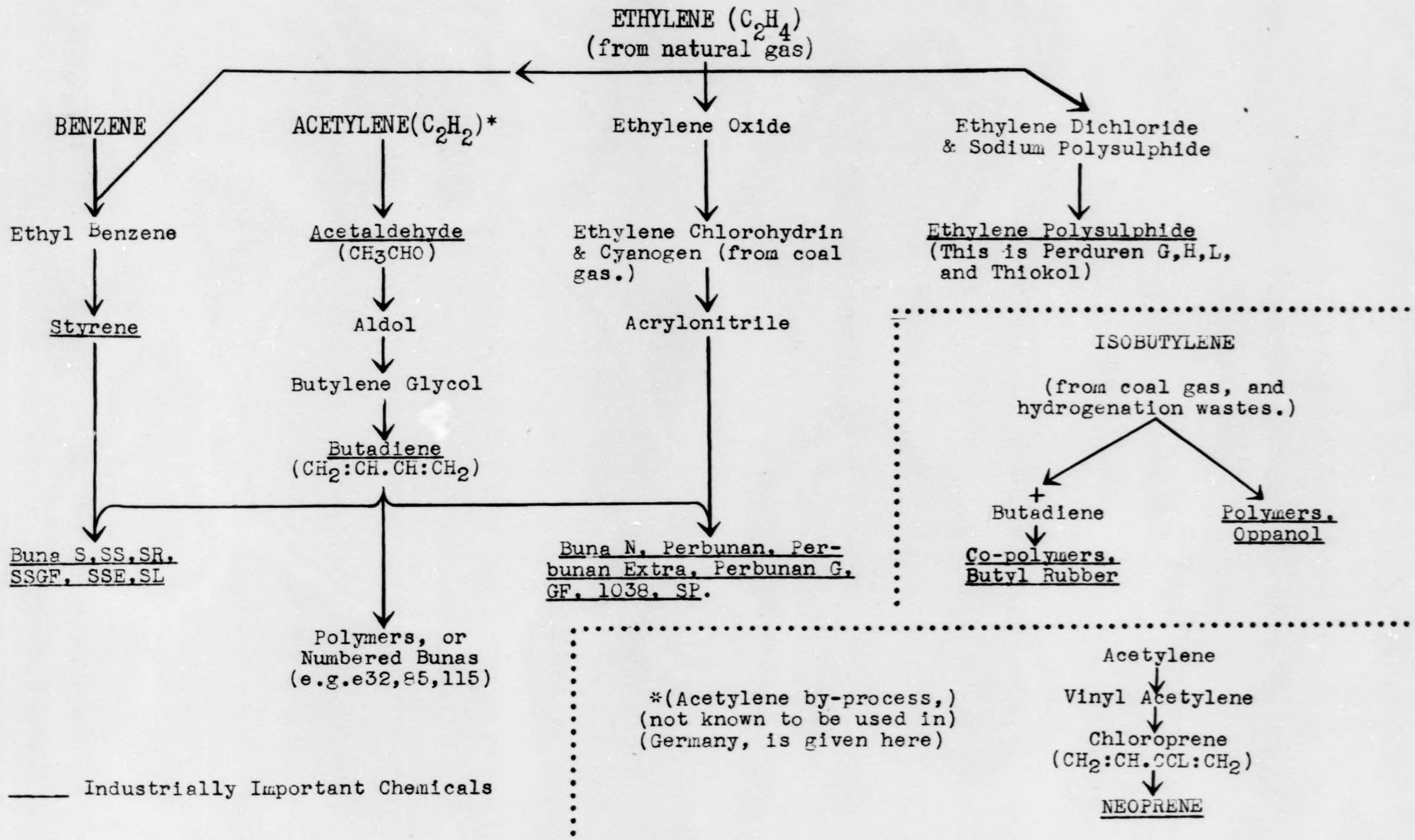
Germany, the uncontested leader in the field of synthetic rubber, has developed a great variety of different synthetic rubber and rubber-like substances, only one of which, Buna S (not to be confused with other Buna rubbers such as Buna N and the various combined Bunas), is suited for use in automobile, truck, and aircraft tires.

Schkopau, specializing in the production of Buna S, is the largest single unit supplying the German tire industry with the synthetic rubber. Until recently it was impossible to produce tires from Buna S exclusively, and crude or reclaimed natural rubber had to be admixed. Recent tests of captured tire material, however, show that the Germans now seem to have succeeded in improving the quality of Buna S sufficiently to make production of 100 percent synthetic rubber tires practicable.

iii. Raw Materials and Processes. The process employed in Schkopau uses coke, limestone, and benzine as its raw materials. Coke and limestone are shipped into the plant from outside the region, converted into calcium carbide in electric furnaces and then transformed into butadiene, the primary of the two basic constituents of Buna S, in a complex 4-stage chemical process. The second basic constituent, styrene, is compounded from benzine and ethylene, both coal-tar derivatives. Crude benzine is brought into the plant from outside sources. Whether ethylene is produced from gases piped in from Leuna, or by dehydration of ethyl alcohol, has not been ascertained. All further processing takes place in the Schkopau plant, culminating in the co-polymerization of butadiene and styrene into Buna S.

iv. Production, Consumption, and Functional Pattern. There are no quantitative data available on the actual output of the Schkopau rubber plant. Estimates of the capacity vary between 50,000 and 100,000 metric tons annually. Painstaking analysis of Schkopau's installations, their size and

SIMPLIFIED FLOW SHEET FOR SYNTHETIC RUBBER


ETHYLENE (C_2H_4)
(from natural gas)
BENZENE
ACETYLENE(C_2H_2)*
Ethylene Oxide
Ethylene Dichloride & Sodium Polysulphide
Ethyl Benzene
Acetaldehyde (CH_3CHO)
Ethylene Chlorohydrin & Cyanogen (from coal gas.)
Ethylene Polysulphide (This is Perduren G,H,L, and Thiokol)
Styrene
Aldol
Acrylonitrile
Butylene Glycol
Butadiene (CH_2:CH.CH:CH_2)
Buna S,SS,SR, SSGF, SSE,SL
Buna N, Perbunan, Perbunan Extra, Perbunan G, GF, 1038, SP.
Polymers, or Numbered Bunas (e.g.e32,85,115)
ISOBUTYLENE
(from coal gas, and hydrogenation wastes.)
+ Butadiene
Co-polymers, Butyl Rubber
Polymers, Oppanol
*(Acetylene by-process,) (not known to be used in) (Germany, is given here)
Acetylene
Vinyl Acetylene
Chloroprene (CH_2:CH.CCL:CH_2)
NEOPRENE
Industrially Important Chemicals

arrangement, leads to the belief, however, that the figure of 100,000 metric tons is more nearly accurate than previous lower estimates.

The total annual requirement of Axis Europe for natural and synthetic rubber of all types has been estimated at 205,000 metric tons for 1944. On the basis of a 100,000 metric ton capacity, Schkopau would be capable of contributing about 48 percent of the total Axis-European rubber requirement.

The location of Schkopau in relation to the location of German tire production is of considerable significance. Before the war German tire manufacture was strongly concentrated in Hannover, where the huge plant of Continental AG accounted for approximately two-thirds of the pre-war tire production. Concentration of Buna S production in Schkopau, within easy reach of the Hannover tire-production center and with direct access to the Halle-Hannover railroad lines and highways, is a typical example of Nazi economic planning. Schkopau was selected for Buna S production because of its nearness to Hannover tire plants. The reverse is true for the selection of Nordhafen on the Mittelland Canal as the site for the new tire plant of Continental AG, after the bombings of Hannover had disrupted production in the old plant. Easy access to Schkopau (in conjunction with other factors such as existence of a skilled labor supply, situation on the Mittelland Canal, etc.) was certainly one of the factors that determined selection of the new plant site on the outskirts of the city of Hannover.

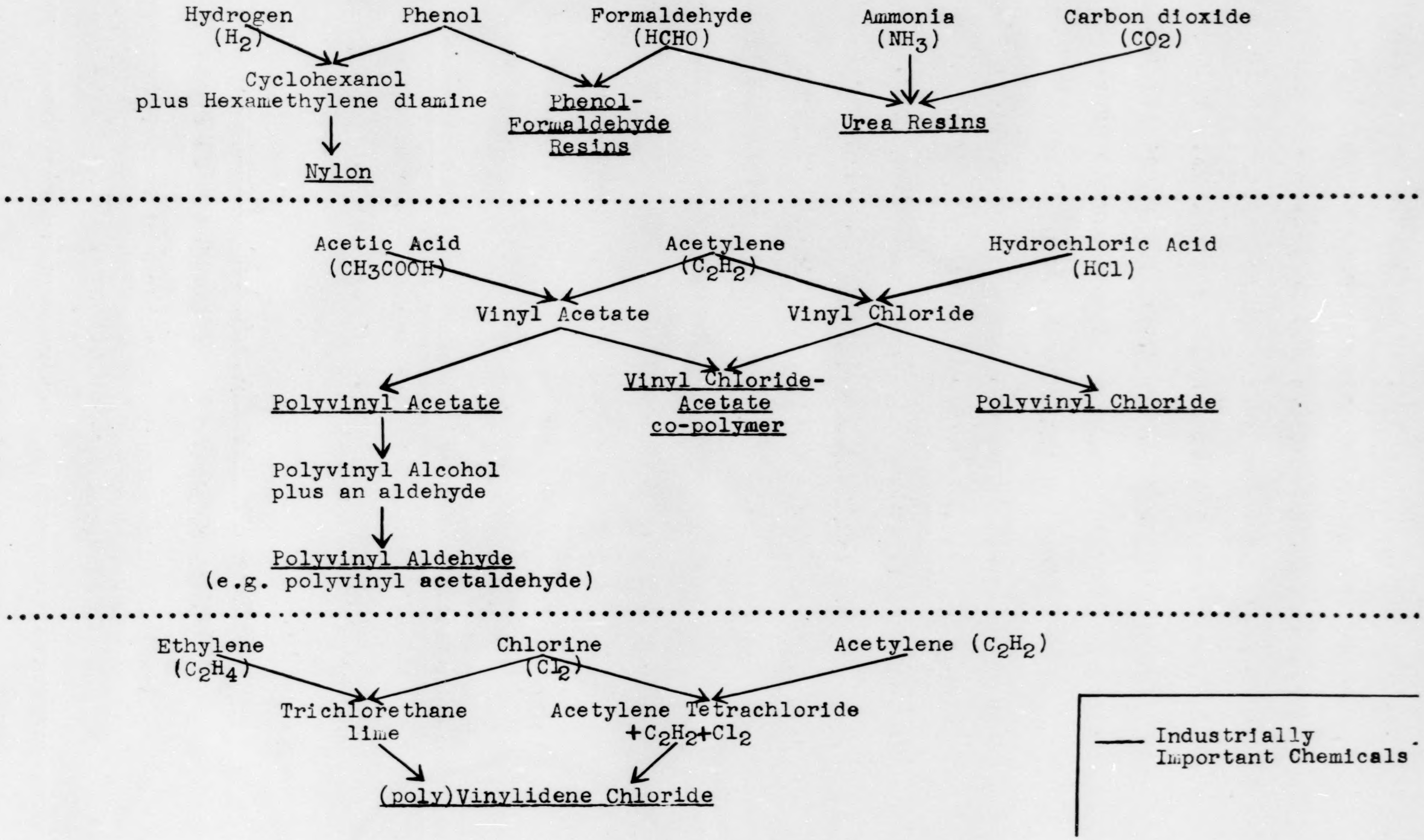
d. Plastics.

i. General. Development of the plastics industry beyond the range of a few old, established types, such as bakelite and celluloid, is one of the most significant recent advances of industrial chemistry. The manufacture of a wide variety of synthetic plastics (products of chemical synthesis that can be moulded by mechanical means without loss of coherence) was initiated in the years immediately preceding the war. New plastic substances, derived by new processes from new primary raw materials are continuously being developed in laboratories and factories (See attached flow-sheets for Plastics No. 1 and No. 2). This represents but the beginning of a new trend in industrial chemistry and consequently knowledge of more recent developments in the German plastics industry is scant, sketchy, and subject to a wide margin of error. The following statements on the present state of the industry in the Central Industrial Region are presented with these qualifications.

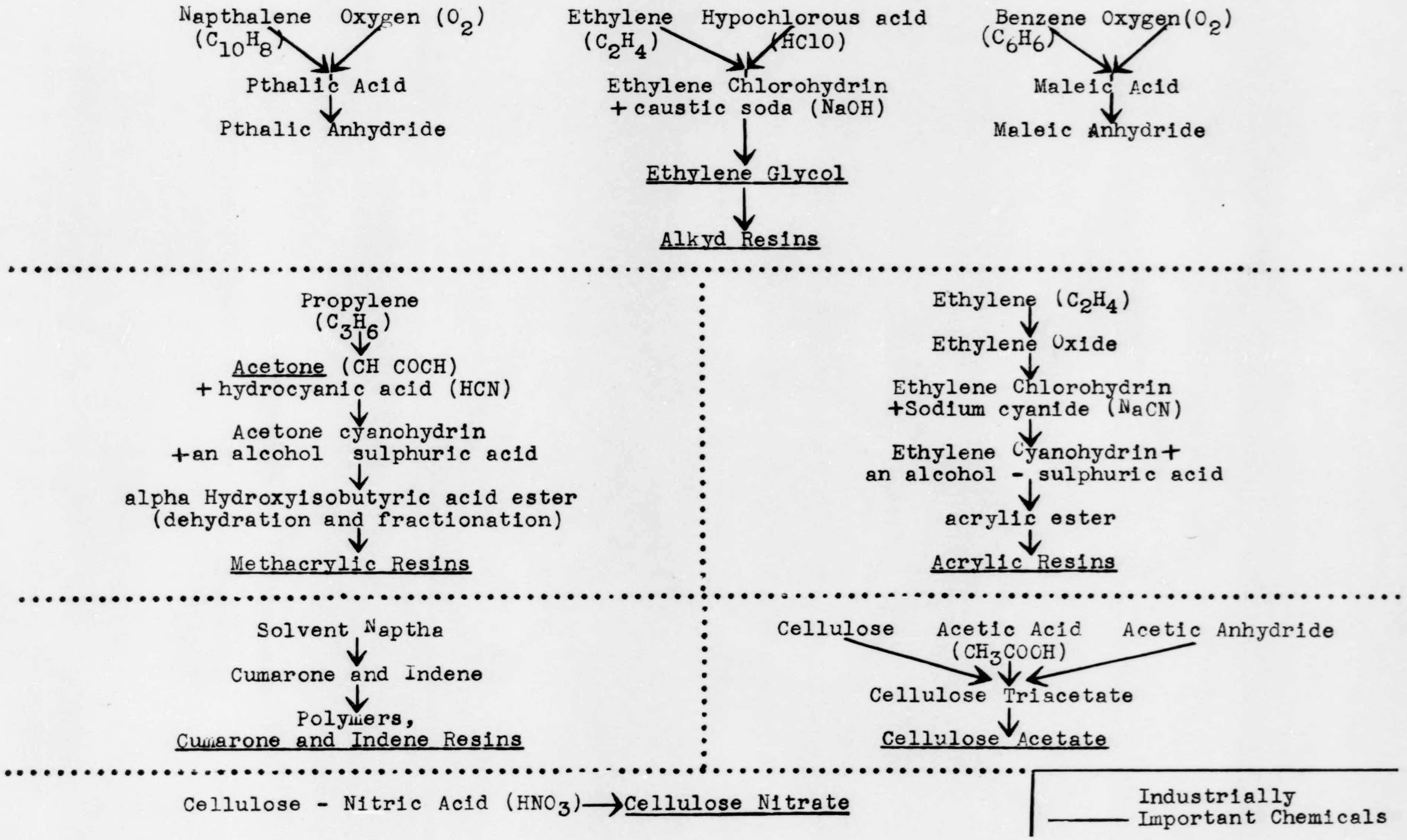
ii. Regional importance. According to available data on pre-war production, the Central Industrial Region occupied a position of minor importance in the German plastics industry. Not one of the plants in the region produced any tar-acid resins, the most important group of plastics, which before the war absorbed between 65 to 70 percent of total German plastics production. Only three of the chemical works in the region are known to have taken up production of plastics as a side line to other chemical production -- the IG Farben works in Leuna, and Bitterfeld and the Agfa film plant in Wolfen, (See: Photochemicals, B, 3, b.)

iii. Raw Materials and End Products. The Agfa Film plant in Wolfen, one of the major IG Farben enterprises in the region, specializes in the production of a single plastic, cellulose acetate. This plastic is manufactured from cotton linters treated with acetic acid, acetic anhydride, and sulphuric acid, and is produced as sheeting, film, rods, and tubes, and more recently in the form of moulding powder, designed for use in ordinary

SIMPLIFIED FLOW SHEET FOR PLASTICS #1.


Hydrogen (H_2)
Phenol
Formaldehyde (HCHO)
Ammonia (NH_3)
Carbon dioxide (CO2)
Cyclohexanol plus Hexamethylene diamine
Phenol-Formaldehyde Resins
Urea Resins
Nylon
Acetic Acid (CH3COOH)
Acetylene (C_2H_2)
Hydrochloric Acid (HCl)
Vinyl Acetate
Vinyl Chloride
Polyvinyl Acetate
Vinyl Chloride-Acetate co-polymer
Polyvinyl Chloride
Polyvinyl Alcohol plus an aldehyde
Polyvinyl Aldehyde
(e.g. polyvinyl acetaldehyde)
Ethylene (C_2H_4)
Chlorine (Cl_2)
Acetylene (C_2H_2)
Trichlorethane lime
Acetylene Tetrachloride $+C_2H_2+Cl_2$
(poly)Vinylidene Chloride
Industrially Important Chemicals

SIMPLIFIED FLOW SHEET FOR PLASTICS #2.


Napthalene ($C_{10}H_8$)
Oxygen (O_2)
Pthalic Acid
Pthalic Anhydride
Ethylene (C_2H_4)
Hypochlorous acid (HClO)
Ethylene Chlorohydrin
+ caustic soda (NaOH)
Ethylene Glycol
Alkyd Resins
Benzene (C_6H_6)
Oxygen(O_2)
Maleic Acid
Maleic Anhydride
Propylene (C_3H_6)
Acetone (CH COCH)
+ hydrocyanic acid (HCN)
Acetone cyanohydrin
+an alcohol sulphuric acid
alpha Hydroxyisobutyric acid ester
(dehydration and fractionation)
Methacrylic Resins
Ethylene (C_2H_4)
Ethylene Oxide
Ethylene Chlorohydrin
+Sodium cyanide (NaCN)
Ethylene Cyanohydrin+
an alcohol - sulphuric acid
acrylic ester
Acrylic Resins
Solvent Naptha
Cumarone and Indene
Polymers,
Cumarone and Indene Resins
Cellulose
Acetic Acid (CH_3COOH)
Acetic Anhydride
Cellulose Triacetate
Cellulose Acetate
Cellulose - Nitric Acid (HNO_3)
Cellulose Nitrate
Industrially Important Chemicals

moulds and in the injection moulding process. Prior to the war cellulose acetate film was used mainly as a film base in the production of commercial film (See: Photochemicals B,3,b). The same plastic has recently come into use for the manufacture of gun-turrets, and non-splinterable glass in aircraft construction. Total German output of cellulose acetate before the war was estimated at 10,000 MT annually. It may be assumed that this figure has meanwhile been substantially increased in order to supply wartime requirements, with Wolfen supplying a substantial share of the total output.

The Leuna works of IG Farben are believed to be the center of German nylon production. This material was first developed in the United States by E.I. Dupont de Nemours and Company and the raw material normally used in its production is phenol. Nylon can also be produced by a different and more complicated process, with carbide as basic raw material. Very little is known about German nylon production, which was started by IG Farben only after the outbreak of war. It is believed that the IG Farben process uses carbide as its starting material.

Although nylon is used mainly as a synthetic spinning fiber in the manufacture of fabrics, it also can be used in the same way as other plastics for the manufacture of sheeting and injection mouldings. Extensive use of nylon sheets in anti-gas capes of the German army leads to the assumption that present production must have reached several thousand metric tons per year.

The IG Farben works in Bitterfeld are known to manufacture small quantities of cellulose ether plastics, produced by treating cotton linters or wood pulp cellulose with ethyl chloride. These are used mainly in the manufacture of special lacquers.

5. War Chemicals.

a. Explosives.

i. Importance. While the Central Industrial Region undoubtedly makes a substantial contribution to German explosives production, the exact amount of this contribution is unknown. As would be expected in such a highly secret industry, statistics on overall production, as well as those for individual plants, have been conflicting and misleading. It may be estimated, however, that from 10 to 20 percent of German explosives are produced in the Central Industrial Region (See attached flow sheet for Explosives).

ii. Location. Although there may be a number of explosives plants in the region, there are only two plants for which information is sufficient to permit definite evaluation. These are the Schönebeck plant of the Lignose Sprengstoff GmbH, and the Reinsdorf plant of the Westfälische-Anhaltische Sprengstoff AG (WASAG).

The Schönebeck plant is situated about one and one-half kilometers south of the Elbe River, and two kilometers west of the Schönebeck railway station. This plant concentrates on high explosives, producing mainly TNT (trinitrotoluene). Recent reports, however, indicate that it is now manufacturing amatol on a large scale. The plant is of considerable size, consisting actually of two plants, one of 1914-18 construction, and a second, much larger plant, built for the present war. The small plant may have been converted to production of amatol from TNT supplied by the newer plant.

The WASAG plant lies one kilometer east of Reinsdorf (about four kilometers northeast of Wittenberg). Production is confined to propellants such as nitrocellulose, nitroglycerine, and diglycoldinitrate, which is largely replacing nitroglycerine in Germany. To what extent the Reinsdorf plant has been converted to the manufacture of diglycoldinitrate is not known.

Considerable activity has been reported on the site of the old WASAG plant at Elsnig, a few kilometers north of Dessau, but reports suggest that this plant is being used for loading munitions rather than the manufacture of explosives.

iii. Finished Products. Explosives fall into four groups according to their uses - high explosives, propellants, initiators, and gunpowder. Each explosive has a definite use defined by its stability and rate of decomposition. A propellant powder, used for propelling projectiles from weapons, must have an even and controlled rate of combustion. Sudden or uneven detonation might rupture the weapon. Propellants include nitrocellulose, nitroglycerine, and diglycoldinitrate. High explosives provide the main bursting charge of munitions and comprise up to 70 percent of the filling of bombs, mines, and grenades. They must be stable enough to withstand shocks, and to retain effectiveness during storage. TNT and amatol fall into this class. Gunpowder, sparingly used as a military explosive, serves occasionally to reinforce the flash of the detonator, or initiator, which is composed of extremely unstable compounds, which must be carefully insulated to prevent premature explosion. Initiators include tetrazene and mercury fulminate. These are required in such small quantities, often a few grains being sufficient, that their production has no great industrial importance.

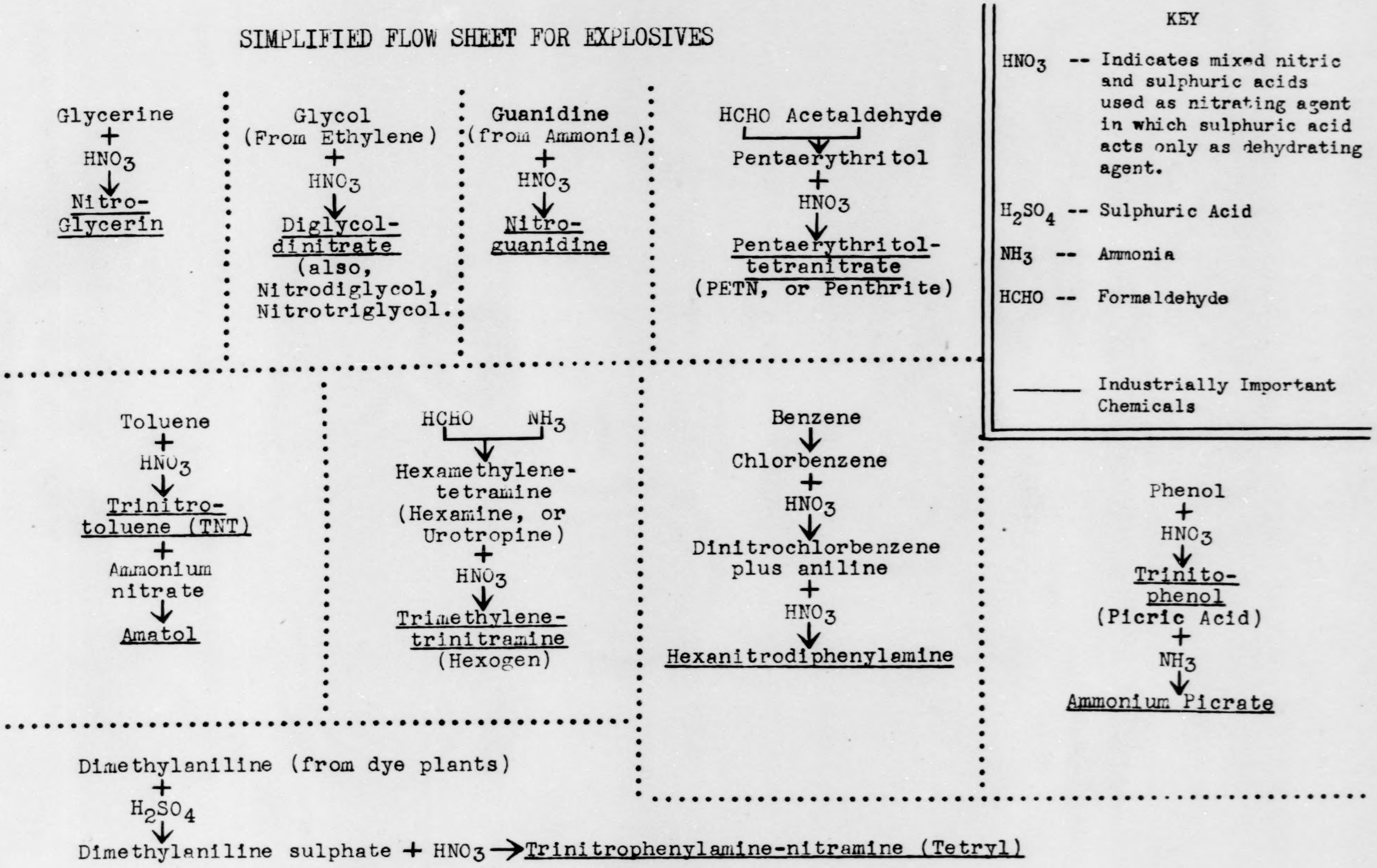
Each of the four groups except gunpowder comprises a large number of explosives, all chemically available to Germany, and many capable of being produced on closely similar equipment. This situation makes it difficult to determine the exact explosives produced by individual plants. In general, a plant concentrates on one group of explosives, but within this group it may effect substantial changes in production.

The general trend of German explosives manufacture can sometimes be estimated from the supply of raw materials available. Nitric acid, the one irreplaceable ingredient of explosives, is in abundant supply, but such materials as toluene and glycerine, the principal raw materials for such staple explosives as TNT and nitroglycerine, respectively, are increasingly difficult to obtain. This results in changes in production such as the substitution of amatol for pure TNT, and diglycoldinitrate for nitroglycerine. Neither of these substitutes, however, represents a deterioration in the quality of German explosives. It is safe to assume that less essential industries would be totally deprived of such materials as toluene before the quality of explosives would be allowed to suffer.

Though the actual production of the German explosives industry is unknown, there can be no doubt of its adequacy. It may be estimated, however, that in 1940, the production of Axis Europe amounted to about 500,000 tons, of which, the Central Industrial Region produced 50,000 tons.

b. Chemical Warfare Products. All current information on the German supply of poison gases is mainly deductive and unsubstantiated. There is little doubt, however, that large stocks of poison gas have been laid up in Germany against possible contingencies. These stocks are probably large enough by now to permit cessation of production, consequently it is unlikely that any plants are now making poison gases. In the anticipation of a gas war, however, many plants have undoubtedly been retained in readiness for immediate production. Only those plants, therefore, which are known either to be at present equipped for poison gas manufacture, or whose equipment would enable them to change

SIMPLIFIED FLOW SHEET FOR EXPLOSIVES


Glycerine + HNO_3 → Nitro-Glycerin
Glycol (From Ethylene) + HNO_3 → Diglycol-dinitrate (also, Nitrodiglycol, Nitrotriglycol.
Guanidine (from Ammonia) + HNO_3 → Nitro-guanidine
HCHO Acetaldehyde → Pentaerythritol + HNO_3 → Pentaerythritol-tetranitrate (PETN, or Penthrite)
Toluene + HNO_3 → Trinitro-toluene (TNT) + Ammonium nitrate → Amatol
HCHO NH_3 → Hexamethylene-tetramine (Hexamine, or Urotropine) + HNO_3 → Trimethylene-trinitramine (Hexogen)
Benzene → Chlorbenzene + HNO_3 → Dinitrochlorbenzene plus aniline + HNO_3 → Hexanitrodiphenylamine
Phenol + HNO_3 → Trinito-phenol (Picric Acid) + NH_3 → Ammonium Picrate
Dimethylaniline (from dye plants) + H_2SO_4 → Dimethylaniline sulphate + HNO_3 → Trinitrophenylamine-nitramine (Tetryl)

KEY

HNO_3 -- Indicates mixed nitric and sulphuric acids used as nitrating agent in which sulphuric acid acts only as dehydrating agent.

H_2SO_4 -- Sulphuric Acid

NH_3 -- Ammonia

HCHO -- Formaldehyde

——— Industrially Important Chemicals

quickly to that manufacture are discussed here. The Central Industrial Region appears ~~to~~ have several large plants capable of production of chemical warfare materials, as listed below. Three of these plants produced poison gas in the last war--the Leuna, Bitterfeld, and Wolfen plants of IG Farben.

Plant	Control	Location	Probable Product
Leunawerke	IG Farben	Merseburg	Phosgene
Chemische Fabrik Griesheim-Elektron	IG Farben	Bitterfeld	Mustard & Cyanogen Chloride
Fahlberg-List AG		Magdeburg	Unknown
Solvay AG		Bernburg	Cyanogen Chloride
Bayerische Stickstoffwerke	30% IG Farben	Wittenberg	" "
AG für Anilin-Fabr.	IG Farben	Wolfen	Phosgene

Generally speaking, raw materials for chemical warfare agents are abundant in Germany. Chlorine, nitrogen, sulphuric acid, and certain organic substances derived chiefly from coal tar are the main raw materials. The chief difficulties in production stem from the lethal nature of the product. All possible precautions must be taken to safeguard employees, and to reduce hazards.

Some gases, such as cyanogen chloride, have a complex molecular structure and must be stored in a very pure state to prevent them from changing to undesirable compounds. Mustard gas is generally stored as thiodiglycol, an intermediate product in the manufacturing process, which has the advantage of being safer than, but readily convertible into mustard gas. It is reported that the Germans are storing large quantities of poison gases in the Harz Mountains and the Bavarian Alps, where few lives would be endangered by accidental release of gas.

TABLE 42. GLASS PRODUCERS IN THE CENTRAL INDUSTRIAL REGION

COMPANY	LOCATION	PRODUCTS
Jenaer Glaswerke, Schott und Genossen	Jena	Scientific equipment, sheet glass, window glass, wired glass, glass for lighting purposes and household glassware, etc.
Dr. Gonthe and Co., Glashüttenwerk	Goslar	Pressed glasses for technical purposes, glasses for railway and road constructing signals, for watches and bicycle lanterns.
Hallesche Pfaennerschaft Abtl. d. Mansfeld, AG	Halle	Bottles and raw glass.
Helmstedter Blashütte Jos. Dieckhaus	Helmstedt	Type not specified.
Helmstedter Glasindustrie AG	Helmstedt	Plate and window glass
G. Becker and Co.	Georgshütte nr. Braunschweig	Bottles, jars and glass containers.
Ernst Wenzel	Weimar	Hollow glass, hard glass and wired glass.

TABLE 43. CERAMIC MANUFACTURERS IN THE CENTRAL INDUSTRIAL REGION

Company	Location	Type of Product
Porzellanfabrik Kahla	Kahla	Household china, technical porcelain
Meissner Ofen- und Porzellanfabrik	Bitterfeld	Stove tiles
Otto Bauermeister & Co. Steinzeug und Klingerwerke	Bitterfeld	Clay tubes, draining tubes, earthenware and pottery
Bitterfelder Steinzeugwarenfabrik GmbH	Bitterfeld	Earthenware and pottery
Deutsche Ton und Steinzeugwerke AG vorm. W. Richter & Co.	Bitterfeld	Clay tubes, draining tubes, earthenware and pottery
Cöswiger Steinzeugfabrik GmbH	Cöswig	Earthenware and pottery
Cöswiger Tonwarenfabrik GmbH	Cöswig	Earthenware and pottery
Atça Steinzeugwerke	Cöswig	Earthenware and pottery
Otto Pflugk	Cöswig	Ceramics
H. Heckel	Halle	Earthenware and pottery
Chemische Werke Schönebeck AG	Magdeburg	Raw and finished materials for ceramic industry
J. Uffrecht & Co., Keramische Werkstatten	Neuhaldensleben	Glazed artistic ceramics
Mitteldeutsche Steingutfabrik	Neuhaldensleben	Earthenware and pottery
Schmelzer & Gericke	Neuhaldensleben	Earthenware and pottery
Hertel & Co.	Ilsenburg	Ceramics
Porzellanfabrik Kalk GmbH	Eisenberg	Chinaware
F. A. Reinecke	Eisenberg	Chinaware
Bremer & Schmidt, Porzellanfabrik	Eisenberg	Porcelain for household and general purposes
Klinker- und Steinzeugwerke Mertendorf, GmbH	Naumburg	Earthenware and pottery

6. Chemical Processing Industries.

a. Glass and Ceramics

1. Glass. Although glass manufacturing is not a major industry in the Central Industrial Region, the production of the Jenaer Glaswerke, Schott und Genossen, at Jena is of sufficient quality and quantity to make it of outstanding importance to the region and the German Reich. This one company supplies almost all the high-grade laboratory glassware used by the German chemical industry and is the chief producer of heat-resisting glass such as Pyrex. Its output is of special importance in wartime because of the increased activity in the field of chemical research.

Besides the large Schott works at Jena, there are a few small producers scattered throughout the region. Table 42 shows the location of these plants and type of product produced.

The glass industry manufactures a variety of articles for household and industrial use. Scientific equipment, such as is produced at Jena, includes test tubes, thermometers, and chemical- and heat-resisting goods. Other products manufactured in the region are flat glass articles, such as window and plate glass used mainly in the building industry, and hollow glassware including bottles, jars, table glass, and electric light bulbs.

Silica, lime, and soda ash, the three basic raw materials required in the manufacture of glass, are all easily obtained from within the region. Silica and lime occur as abundant natural resources and soda ash is produced in large quantities by chemical plants in the region. A number of other substances are added according to properties required in the finished product, such as strength, color, and resistance to heat, cold, and chemicals. Some of the secondary materials such as lead, and potash are available in the Central Industrial Region, while others such as boric oxide and bauxite, the raw material for alumina, must be imported from other European countries.

ii. Ceramics. Although the ceramics industry is more highly concentrated in the Central Industrial Region than the glass industry, its production in the past was comparatively unimportant to the region or to the German Reich. Some branches of the industry have become more important, however, as wartime requirements have increased the need for preserving jars, stove tiles, and technical porcelain used mainly for insulating purposes.

Production centers around Kahla and Eisenberg in Thüringen and Cöswig, Bitterfeld, and Neuhaldensleben in Provinz Sachsen. Table 43 gives location of companies and type of product manufactured.

The ceramics industry produces two main types of products-earthenware and china. Earthenware products include all non-vitreous pottery used for common crockery such as teapots, coffee pots, jugs, and various kinds of tiles. China consists of pottery which has a vitreous luster generally obtained by using more feldspar. It is used for fine table and ornamental ware, kitchen and laundry utensils, and electrical insulators.

As in the glass industry the main raw materials are widely distributed natural resources--clay, kaolin, flint, and feldspar. Large deposits of kaolin are found in the Halle district; china sand (a substitute for clay), and flint are found in numerous places in Thüringen.

iii. Production and Consumption. Both the glass and ceramics industries have undergone considerable restriction and standardization during the war. The products manufactured have been reduced in number and simplified as much as possible in order to economize on labor, machinery, and materials. Some plants have been converted from the production of non-essential to essential goods. The demand for glass has been increased because of its use as a substitute for tin plate for packing perishable goods, in building new plants for war industries, and for replacement of glass shattered during bombing. Wherever practical glassware is now produced in place of pottery since it is more economical of fuel and because the ceramics industry, as a result of bomb damage, is concentrating on the production of insulating porcelain and roofing and stove tiles.

The aggregate output of the glass and ceramics manufacturers in the Central Industrial Region in 1936 accounted for about 8 percent in value of the total German output and about 11 percent in value of total exports for these industries.

iv. Labor. Of the total number of workers in Germany engaged in glass and ceramics manufacturing, about 8 percent were employed in the Central Industrial Region. Except where skilled labor is required, as in the manufacture of scientific glass goods, a large percentage of women are employed.

b. Paper and Paper Products.

i. Importance. The manufacture of paper and paper products accounted for less than 2 percent of total German output of 3,569,000 metric tons in 1937 and,, consequently, a large share of Central Germany's needs must be met by sources from outside of the region.

ii. Location. Except for a few fairly largesized paper plants, listed below, manufacturing is carried on in small mills, mainly in the Harz Mountains with a few producers scattered along the eastern border of the Central Industrial Region from Magdeburg to Merseburg.

MAJOR PAPER MILLS

Company	Location	Prod. per day in metric tons for 1937	Type of Product
1. Natronzellstoff- und Papierfabriken AG	Oker	40	Kraft paper
	Arnstadt	n.a.	
2. Gebrüder Dietrich	Merseburg	40	paper
3. C.F. Hertwig	Duderstadt	10	leather paper &
		5	leather board
4. R. Fliess, Papierfabrik	Magdeburg	n.a.	paper

iii. Finished Products and Raw Materials. Like most German plants those in the region are specialized, producing one or two products such as a specific kind of paper, cardboard, or woodboard. Paper and cardboard lead all other products in quantitative production.

The chief raw materials used in paper manufacturing are available locally. Woodpulp is probably supplied from small concerns located near the paper mills, and a plentiful water supply is ensured by building plants near streams or rivers. Other raw materials such as chlorine for bleaching, synthetic dyes for coloring, clay or calcium carbonate for fillers, and rosin and soda ash for sizing are all easily obtainable within Central Germany, either as natural resources or from chemical plants.

iv. Impact of War. Due to the need for conserving manpower and industrial equipment, Germany has endeavored to concentrate production by closing down small and inefficient plants and transferring labor and industrial equipment to larger plants. It is, therefore, probable that all except the few large mills in the Central Industrial Region have been closed down. It is possible, however, that some mills are now producing new wartime products, including the whistling device for whistling bombs, casings for rockets and flares, and insulation for field electrical equipment or are making substitutes for products formerly made from ~~other materials such as fibers and leather.~~

7. Major Multiple-Purpose Chemical Plants.

a. Leuna Works.

i. General. The Leunawerke at Merseburg is one of the principal plants of the IG Farbenindustrie, and is of great importance to the German war economy. Since its construction in 1916, it increased steadily in size until it became the world's largest producer of nitrogen and fertilizers. This expansion would have been impossible but for the extensive activities of the IG Farben in international trade during the pre-war years, which allowed Leuna's production to be increased beyond national requirements, and resulted in an accumulation at Leuna of the ponderous and complicated equipment necessary for nitrogen production.

Leuna possesses three advantages which have been mainly responsible for its evolution as one of the premier chemical plants in Germany: (1) the financing of its huge assemblage of expensive equipment; (2) a steady supply of necessary raw materials from other IG Farben concerns; (3) technical experience in building Leuna into a compact and integrated unit.

Thus Leuna was ideally equipped in the early pre-war years to handle a considerable amount of the increasing synthetic gasoline production. The conversion of some of the nitrogen facilities to gasoline and methanol production gained two main advantages: (1) time, in that the physical organization of Leuna permitted production to be shifted in a fraction of the time establishmant of a new plant would have taken; (2) materials, in that the special steels and complicated machinery required were in short supply. This production of synthetic gasoline at Leuna was of great value to Germany before other plants could be built.

The following chart estimates the relative importance of the major Leuna products to Germany.

PRODUCT	CAPACITY GERMANY	CAPACITY LEUNA	PERCENTAGE LEUNA TO GERMANY
Syn. Gas	5,000,000 m.t.	500,000 m.t.	10
Nitrogen	1,500,000 m.t.	812,000 m.t.	54
Nitric Acid	1,350,000 m.t.	300,000 m.t.	22
Fertilizers	- - -	- - -	45-65 in 1939

ii. Physical Plant. The Leunawerke extends along the west side of the main Halle-Weissenfels railway on the southern outskirts of Merseburg. It is laid out in the form of a rectangle, pointing north and south, measuring approximately one and one-half by three kilometers. The eastern side of the plant is somewhat convex, and abuts on what appears to be a residential area.

The physical conformation of the plant is very regular and shows careful planning and controlled growth. As the processes used require considerable flow of liquids and gases, many buildings are joined by an intricate system of overhead pipelines. Several railway spurs fan out through the plant from the southern end, and there is also an overhead coal conveyor and what seems to be a narrow-guage plant railway. The whole system of transport and communication is closely integrated with the flow of materials, and is to a large degree overhead.

The main feature of the plant is the long row of boilerhouses extending two-thirds of its length. This row is marked by thirteen large smoke-stacks which are visible for miles. The boilerhouses, as well as most of the other buildings whose use does not specify a particular construction, are solidly built of brick and concrete, and are several stories high. The whole plant gives the impression of solid and careful construction, with the outlying storage houses being particularly massive.

West of the boiler-houses are located the gas works, gas storage tanks, gas scrubbing towers, and large storage silos. The towers and tanks are easily discernable, while the gas works are housed in long sideless buildings with saw-toothed roofs. East of the boiler-houses are the main processing plants, including those for gasoline distillation, coal hydrogenation, ammonia conversion, calcium nitrate, and the pumping and compressing works. Buildings in this area are of various shapes and sizes, and are interspersed with storage tanks and towers. The area is serviced by a regular pattern of large pipes laid out in a pattern of adjacent squares.

At the far southern end of the plant lie the railway marshalling yards, and an area which appears to be under construction. This area contains several large buildings but their use is not yet apparent.

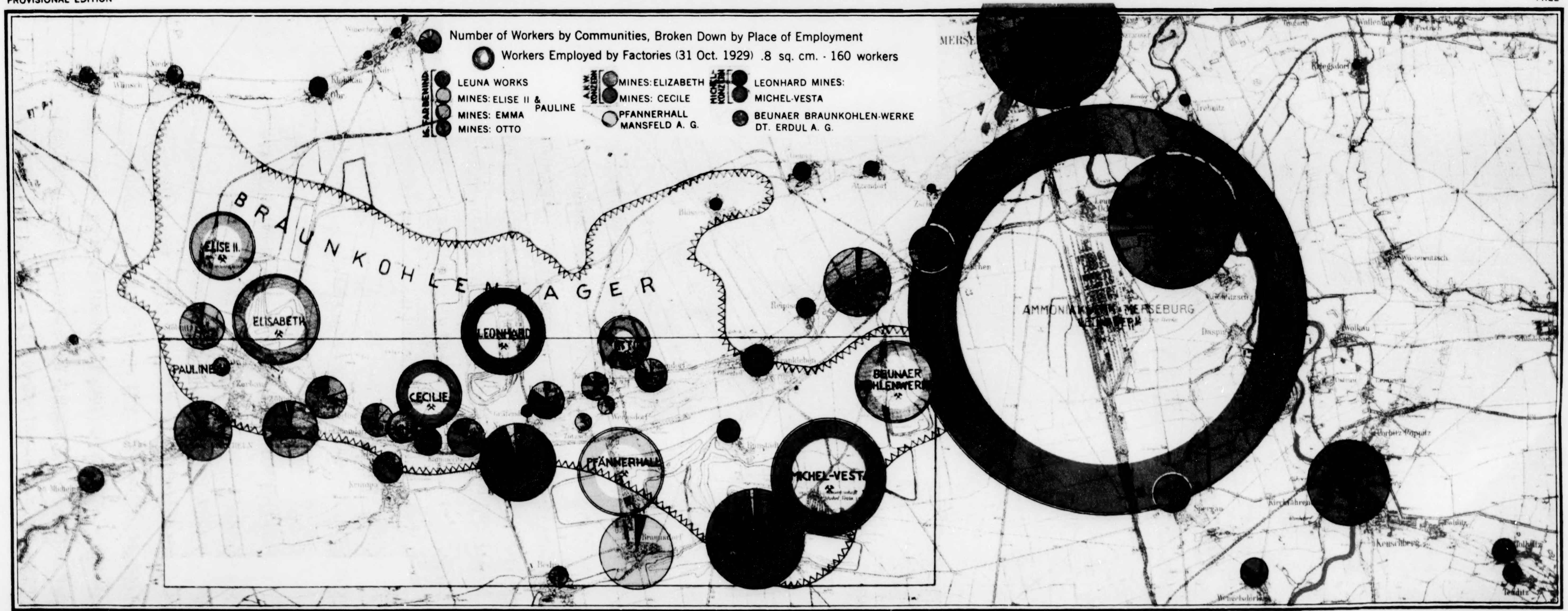
iii. Production Factors. The main problem at Leuna is the supply of coal, as the Haber-Bosch process uses coal both for power and as a raw material. This process begins with the preparation of water and produces gases by passing steam and air respectively

Due to its large size, the following document has been filmed in segments. The order of the segments is as follows: left to right, top to bottom.

WORK AND RESIDENTIAL LOCATIONS OF WORKERS IN THE MERSEBURG-LEUNA-GEISELTAL DISTRICT

PROVISIONAL EDITION

FREE


Number of Workers by Communities, Broken Down by Place of Employment
Workers Employed by Factories (31 Oct. 1929) .8 sq. cm. - 160 workers
I.G. FARBENIND.
LEUNA WORKS
MINES: ELISE II & PAULINE
MINES: EMMA
MINES: OTTO
A.K.W. KONZERN
MINES: ELIZABETH
MINES: CECILE
PFANNERHALL MANSFELD A. G.
MICHEL-KONZERN
LEONHARD MINES:
MICHEL-VESTA
BEUNAER BRAUNKOHLEN-WERKE DT. ERDUL A. G.
BRAUNKOHLENLAGER
ELISE II.
ELISABETH
PAULINE
LEONHARD
CECILIE
PFANNERHALL
MICHEL-VESTA
BEUNAER KOHLENWERKE
AMMONIAKWERK MERSEBURG
MERSEBURG

Verkleinerung: Hergestellt in Photoalgraphie vom Reichsamt für Landesaufnahme, Berlin 1930.

NO. A-3052
30 JAN 1944

MERSEBURG ATLAS

KILOMETERS 0 10 20 30 40 50

LITHOGRAPHED IN THE REPRODUCTION BRANCH, OSS

over incandescent coke. The gases are mixed and treated to concentrate hydrogen and nitrogen gases in the ratio of three to one. They are then washed in towers to remove impurities, and finally combined in massive steel converters into ammonia. This process requires the expenditure of about 1,400 kwh and one-half to one ton of coke (or roughly three times that amount of brown coal) for every ton of nitrogen produced. Although Leuna is noted for the extent and efficiency of its power recovery equipment, the various compressing, pumping, and purifying operations require a great deal of heavy machinery. It was estimated that, before the war, Leuna consumed about 22,000 MT of brown coal a day in this process. These figures have been augumented both by the additional brown coal needed for gasoline synthesis, and by the coke imported. Separate operational data for synthetic gasoline are not available.

iv. Labor. Leuna employes between 20,000 and 25,000 workers, and there have been no reports of labor shortage, except in that many foreign laborers and women are now employed. The workers are housed in the neighboring towns, and commute mainly by bus. (Map No. A3052)

b. Bitterfeld-Wolfen Multiple Products Area.

i. General. The Bitterfeld-Wolfen multiple products works are owned and controlled by IG Farben and form an integral part of that vast organization. It is one of the largest chemical works in Germany, second in size and importance only to the IG Farben Leuna plant in Central Germany. Its value in the realm of German chemical production and that of the Central Industrial Region is best illustrated by the following table.

PERCENTAGE PARTICIPATION OF MOST IMPORTANT BITTERFELD-WOLFEN PRODUCTS IN CENTRAL INDUSTRIAL REGION AND GERMANY

Product	Percent of Production in Central Industrial Region	Percent of Production in Germay
Roll & motion picture film	100	90
Dyes and intermediates	100	12
Synthetic fiber	100	20
Chlorine	67	33
Nitric acid	23	9.6

In addition to the chemical plants, there are also metallurgical works contributing an estimated 25 percent of German aluminum capacity and producing about 17 percent of total German magnesium output.

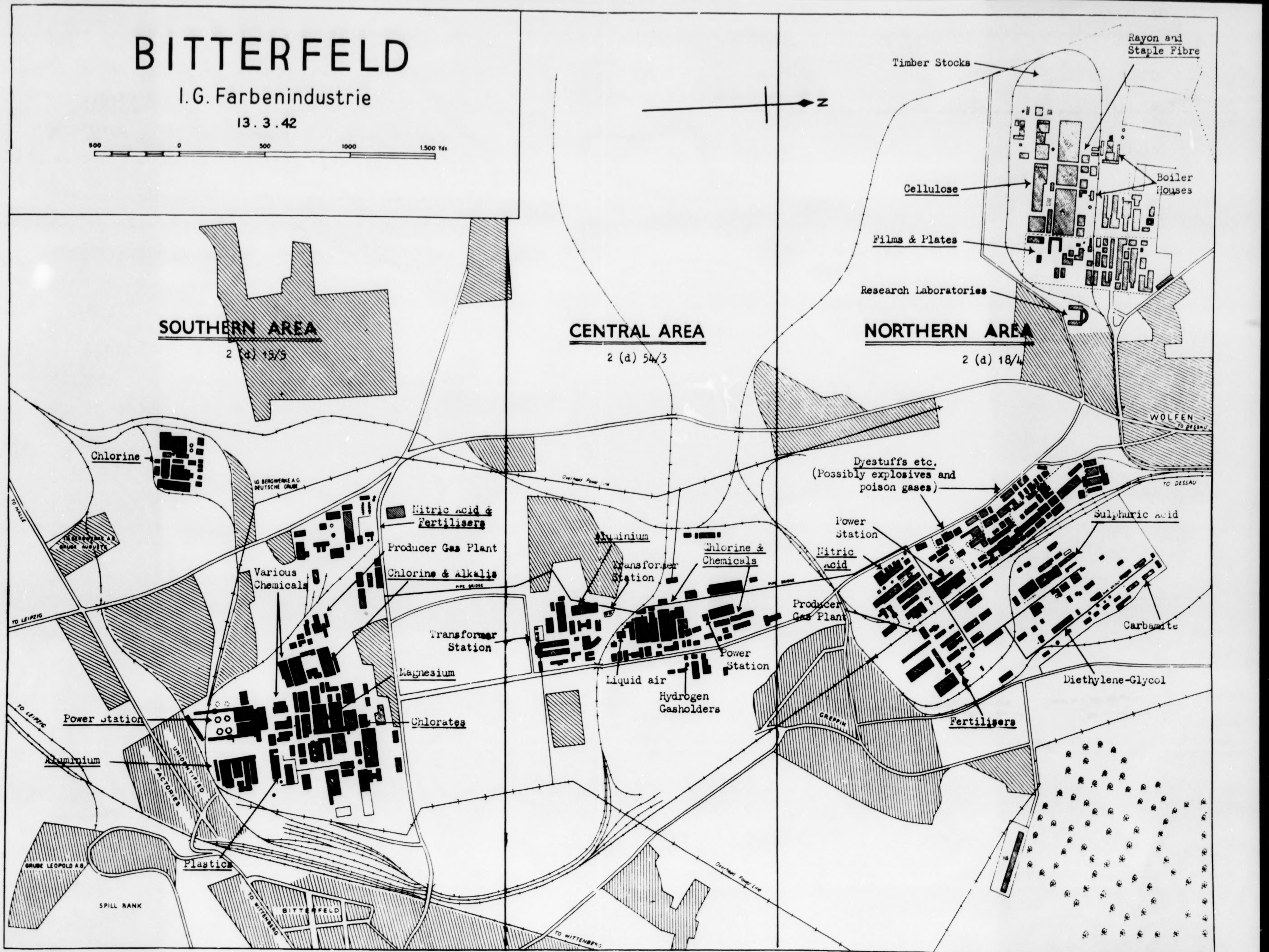
ii. Description. The Bitterfeld-Wolfen plant comprises an area of about three and one-half square miles stretching north along the western side of the Mulde River from Bitterfeld to Wolfen (See Map of the Bitterfeld plant). About two-thirds of this area is built up into four main industrial sections. As they lie in a rough geometric pattern they will be designated in this report as the southern, central, northern and northwestern areas. Actually these areas represent plants which have been taken over by IG Farben during the course of its consolidation, and they are usually referred to by their old names--Chemische Fabrik Griesheim-Elektron Werk I, Chemische Fabrik Griesheim-Elektron Werk II, Wolfen Farbenwerke and the Wolfen Agfa Werke respectively.

Since a number of products such as chlorine and nitric acid manufactured in a plant in one section are used in the production processes of plants in other sections, it is essential that means of interconnection between the individual works be provided. This is accomplished mainly by a pipe bridge extending from the southern area to the northern area. Within the four areas there are a number of conveyors and pipelines intricately and dependently related. A network of branch railway lines extend throughout the works

BITTERFELD

I.G. Farbenindustrie

13.3.42


500
0
500
1000
1.500 Yds
Z
SOUTHERN AREA
2 (d) 15/5
CENTRAL AREA
2 (d) 54/3
NORTHERN AREA
2 (d) 18/4
Timber Stocks
Rayon and Staple Fibre
Boiler Houses
Cellulose
Films & Plates
Research Laboratories
WOLFEN
TO DESSAU
TO DESSAU
Chlorine
IG BERGWERKE A.G DEUTSCHE GRUBE
IG BERGWERKE A.G. GRUBE AUGUSTE
TO HALLE
TO LEIPZIG
TO LEIPZIG
Nitric Acid & Fertilisers
Producer Gas Plant
Various Chemicals
Chlorine & Alkalis
PIPE BRIDGE
Magnesium
Power Station
Chlorates
Aluminium
UNIDENTIFIED FACTORIES
Plastics
GRUBE LEOPOLD A.G.
SPILL BANK
TO WITTENBERG
BITTERFELD
Overhead Power Line
Aluminium
Transformer Station
Chlorine & Chemicals
PIPE BRIDGE
Transformer Station
Liquid air
Hydrogen Gasholders
Power Station
Overhead Power Line
TO WITTENBERG
Dyestuffs etc.
(Possibly explosives and poison gases)
Power Station
Nitric Acid
Sulphuric Acid
Producer Gas Plant
Carbamite
Diethylene-Glycol
Fertilisers
GREPPIN

and connect with the main Dessau-Leipzig railway. Several trainloads arrive daily at the plants to deliver strategic raw materials and carry away finished products to be delivered throughout Germany.

The southern area comprises a triangular pattern of buildings roughly one mile long by one-half mile wide on the western outskirts of Bitterfeld. These buildings are of various sizes and are arranged in two groups according to industrial products with a small nitrogen processing assembly at the apex of the triangle and the other group filling the base.

The main production of the area is in this second group, which has large facilities for a number of products including chlorine and chlorine compounds, magnesium, aluminum, and alloys. Other products, besides the nitric acid, fertilizers and sundry nitrogenous salts produced in the upper group, are plastics and various chemicals.

To the southwest are a group of buildings covering a compact area 300 yards square which should be mentioned here although they are not owned by IG Farben. This is the Kali Chemie AG which manufactures chlorine and alkalies.

The Central area is the smallest of all four areas covering a rectangular space 1,400 yards long by 400 yards wide. In the southern half are two large buildings and a big U-shaped structure, the main buildings housing the works for the reduction of aluminum. The northern half is made up of a compact group of large buildings surrounded by several gas holders and storage tanks. The major part of the Bitterfeld-Wolfen production of chlorine is carried on in this section. Caustic soda, bleaching powder, sodium metasilica, synthetic gems, formic acid and formates are also produced here.

The northern area contains about 100 buildings spread out over a rectangular area 1,500 yards long and 1,000 yards wide bisected by the main Dessau-Leipzig railway line. The portion west of the railway composed mainly of tall buildings fairly uniform in size with numerous rows of towers, chimneys, silos and tanks presents a contrast to the eastern side in which the buildings are less numerous and compact, and are of varied shape and structure. The two eastern-most plants are government owned and produce carbamite and d diethyleneglycol.

The large variety of products manufactured in this area include dyes and intermediates, nitric acid, and nitrogenous fertilizers, sulphuric acid, hydrochloric acid, inorganic chemicals, solvents and possibly explosives.

Buildings in the northwestern area form a well-filled space about three-fourths of a mile square. The physical aspect of the eastern portion containing about a dozen long narrow buildings differs considerably from the western portion which has fewer buildings of larger size. Adjacent to the latter plants lies an enormous woodpile covering an area over a mile long and a half mile wide. Also distinguishing this area from the others is a series of three parallel troughs for the disposal of effluents.

Products produced here are photographic films and plates, cellulose, rayon and staple fiber.

iii. Power. Bitterfeld-Wolfen consumes a vast amount of electrical power daily, supplied by two large power stations in the area. One of 140,000 kw. is in the southern area and the other of 98,000 kw. in the northern area with a transformer station located in the central portion. In addition power is received from the Golpa-Zchornewitz station and there are connections with the main grid.

Water. Large volumes of water used as cooling and purifying agents are also essential to maintain operations in the various plants. Both the Saale and Mulde, from which Bitterfeld-Wolfen obtains its water, are small and are also used by other industries. This has presented difficulties which have been overcome by chemically treating the water and recirculating it two or three times. Daily water requirements of the film plant alone in 1939 was 20,000 cubic meters.

iv. Labor. Workers employed in the IG Farben works are drawn from a fairly wide territory including Bitterfeld, Wolfen, Dessau, Leipzig, Halle and surrounding towns and villages. In addition the area around the plants is built up with workers cottages. Total employment in Bitterfeld-Wolfen amounts to around 31,700 workers approximately one-third of all the workers engaged in chemical industries in the Central Industrial Region.

v. Functional Integration. IG Farben has so integrated the production of its various large chemical plants spread over Germany that it is largely self-sufficient in supplying the main raw materials required in the manufacture of its many widely diversified products. This has resulted in a highly complicated system of maintaining, via Germany's excellent railway and water transportation, a steady flow of raw materials and semi-finished products between the various centers of production. The flow system is so complex and intricate that it is virtually impossible to present a complete picture of the raw material supply to and from Bitterfeld-

Wolfen. Some indication, however, may be derived from the following.

Except for synthetic camphor, all the raw materials, such as nitrocellulose from Reinsdorf and Eilenburg and gelatine from Schweinfurt, used in photographic film manufacturing are brought in by rail from other IG Farben plants, or, as in the case of solvents, are supplied from Bitterfeld-Wolfen itself. Ammonia, used in the production of nitric acid, comes from nearby Leuna which maybe the source also of carbon bisulphide used in the manufacture of synthetic fibers. Additional supplies of caustic soda and sulphuric acid are shipped from Leverkusen and Ludwigshafen when needed and nitric acid may be brought in from Höchst, Leuna or Oppau. Supplies of alumina are brought in from Southern or Western Germany. In return some of the many products manufactured at Wolfen-Bitterfeld are shipped to other IG Farben plants to be used as raw materials in their production processes. Among these are nitric acid pulp, manufactured in the Wolfen wood-pulp plant, which is shipped to Dormagen for acetylation and for use in the manufacture of cuprammonium fiber and supplies of chlorine which are shipped by tank cars for use in a number of other IG Farben plants. Large amounts of chlorine are also used in Bitterfeld-Wolfen itself either as a constituent or in the manufacturing process of almost every product produced in the works with the exception of aluminum and nitrogen products.

C. Miscellaneous Industries

1. Wood Industries

a. General. The Central Industrial Region, with an area equal to about 7 percent of the German Altreich of 1936, possesses about 8 percent of Germany's forest resources. About 25 percent of the region is forested, but most of the forests are concentrated in the Harz Mountains, and the rest of the region contains only small, scattered, wooded tracts. Approximately 74 percent of the forest is evergreen and 26 percent deciduous. The principal types of evergreen are pine (45 percent), spruce (25 percent), and fir (3 percent). Deciduous forests include beech (15 percent), oak (4 percent), and birch (1.5 percent). Mixed forests of pine and beech are found in lowlands (under 1,500 feet), dense forests of spruce between 1,500 and 3,200 feet in the Harz Mountains, and only scrub above the timberline at 3,200 feet.

Some 50,000 woodcutters worked in the forests of the Central Industrial Region in 1938. Most of these worked in the forests only during the winter and farmed or were employed in wood industries during the rest of the year.

Local forest resources supplied at least 85 percent of the wood consumed in the region in 1938. The remaining 15 percent came chiefly from Sweden and Finland to the ports of Hamburg and Bremen where it was transferred to railroads. Lumber, plywood, boxes, and barrels were imported. Imports of building lumber and plywood have probably been greatly increased since the outbreak of war.

b. Lumbering and Logging Industries. During the three months of the winter logging season of 1936, the 50,000 wood cutters of the Central Industrial Region, cut more than 5,000,000 cu.m. of timber, including over 2,600,000 cu.m. of pine, spruce, fir, and larch building timber; 400,000 cu.m. of beech, 350,000 cu.m. of mine timbers, and large quantities of timber for conversion into pulp, paper, and charcoal.

The timber is sawed and planed chiefly in small mills in or near the Harz Mountains, especially near Blankenburg, Goslar, Nordhausen, Seesen, and Wernigerode. Halle and Magdeburg are exceptions to the usual rule, being saw milling and planing centers as well as manufacturers of plywood and boxes.

c. Wood-Working Industries. Almost all the timber produced in the region is consumed locally as building material or in wood industries. The wood-working industries employed more than 25,000 workers in 1936. About 12,000 workers were engaged in the manufacture of furniture and musical instruments such as pianos; 4,200 in the processing of cellulose for use by chemical industries; 5,200 in the carving of toys and similar woodenware; 2,500 in the manufacture of boxes and barrels, 1,200 in the manufacture of wooden handles for brushes; and smaller numbers in the manufacture of other wooden commodities.

Plants for manufacturing wood products vary in size from private homes to large factories. The manufacture of small wooden articles, frequently a part-time home industry is scattered throughout the Central Industrial Region; furniture manufacturing is centered around Braunschweig, Erfurt, Gotha, Halle, Magdeburg, and Weimar; and musical instruments, especially pianos of high quality, are made at Braunschweig, Gera, and Jena. These industries although comparatively small, are famed for the quality of their products, which are exported to other parts of Germany and to foreign countries.

The chief types of wood and their uses in the Central Industrial Region are listed below:

Utilization of Lumber

Construction Lumber	Pine, spruce
Floorwood	Beech
Plywood	Spruce
Furniture for everyday use	Oak, beech; pine and spruce may be used for low-grade furniture
Boxes and barrels	Beech
Handles	Beech. High-grade handles (as for axes) must be made of hickory or maple, but beech is satisfactory for broom, mop, or brush handles.
Wood for use in chemical industries (cellulose)	Beech; pine and spruce may also be used
Firewood	Pine, spruce, and fir produce a quick, hot fire. Hickory and oak produce a slower fire, but they are not available in quantity in the region.
Charcoal	Some charcoal is manufactured in the region. It is made principally from beech and birch.

d. Impact of War. Many wood cutters and woodworkers have been taken into the German armies since the outbreak of war, and it has become difficult to carry on the lumbering and woodworking industries. Timber cutting has been kept almost at peacetime levels, however, by the overcutting of some of the more accessible stands such as those of the lower slopes of the Harz. Woodcarvers and manufacturers of wooden toys and musical instruments have either been drafted into newly created war industries or have been assigned to war work at home.

2. Buildings Earths Industries

a. Importance. The Central Industrial Region is an important center for the manufacture of cement, bricks and tiles, limestone products, etc. The region had about 10 percent of the 49,694 workers in these industries in Germany in 1936.

The buildings earths industries in Central Germany have had to meet vastly expanded demands for such military needs as fortifications, airdromes, bomb shelters, submarine bases, industrial works, and maintenance of roads and railways.

This has been accomplished mainly by a strict curtailment of output for civilian use rather than by an increase in production.

Plentiful supplies of limestone, clay, and sand, the main raw materials used in these industries, are widely distributed throughout the area. Limestone is quarried mainly in the Harz mountains and northern Thüringen while clays and sands are found throughout the lowland portions of the region from Wittenberg to Jena. Proximity to coal fields has been one of the greatest factors in promoting the industries in the region because of the high requirements for fuel (the cement industry requires up to 700 lb. of coal to produce one ton of cement) and the necessity for maintaining low transportation costs.

b. Cement Industry. Cement is the most desirable of the stone and earth products for construction purposes. Cement plants are distributed throughout the northern and eastern portions of the region. (Table 44 gives the principal producers in the region.)

There are two main groups of cements, natural and artificial. Artificial cements are quantitatively and qualitatively by far the more important, and form at least 85 percent of all cement made. They are manufactured by burning controlled mixtures of finely ground raw materials in a kiln until it forms a compound. The resulting material, called cement clinker, emerges from the kiln in the form o pellets which are then ground to make finished cement. Portland cement is the most important artificial cement, and is the chief type produced in the Central Industrial Region. It is manufactured by the above process using limestone and clay as the main raw materials with the addition of a small amount of gypsum in grinding the clinker. Ordinary Portland cement when mixed with water

Table 44.

PRINCIPAL CEMENT PRODUCERS IN THE CENTRAL INDUSTRIAL REGION

Company	Location	Production
Sächsisch-Thüringische Portland zement-Fabrik Prüssing & Co., Oppeln	Nienburg-Jesarbruch Goschwitz	large
"Adler" Deutsche Portland-zement-Fabrik AG, Oppeln	Nietleben	large
Portlandzement u. Kalkwerke Sachsen-Anhalt AG	Nienburg	large
AG Kursachsen Portland-Cementwerke	Carsdorf (a.d. Unstrut)	large
Vereinigte Harzer Portland-Cement- u. Kalkindustrie AG	Wernigerode	large
IG Farbenindustrie AG	Wolfen	large
Portland-Cement-Fabrik GmbH	Hoiersdorf (nr. Schöningen)	
Braunschweiger Portland-Cementwerke AG	Salder	
Portland Cementwerke Saxonia AG vorm. Heinrich Laas Söhne	Glothe (nr. Kalbe)	
Portland Cement Worke Schwanebeck AG	Schwanebeck	

requires from thirty minutes to two hours to set and about twenty-eight days to harden. Variations of Portland cement are the quick setting and the rapid hardening types which are used for special types of construction. Aluminous cement is made by melting a mixture of chalk or limestone and bauxite. No gypsum is used in grinding the clinker. Aluminous cement hardens very rapidly, in about twenty-four hours. It is desirable for certain types of construction as it is resistant to acids and sea water. Slag cement, a mixture of hydrated lime and granulated blast furnace slag, is often apt to be unreliable since the properties of the raw materials vary considerably. Consequently it is little used. Portland blast furnace cements are made by adding granulated basic blast furnace slag to Portland cement clinker before grinding.

Natural cements are manufactured by burning the raw materials without preliminary mixing or grinding. Since composition and properties of the raw materials contain considerable variations, the finished product is subject to these same qualities and is less suited for the building industry than artificial cements.

One of the most important uses of cement is for concrete which is made by mixing cement with crushed rock, sand and other ballast. It has been estimated that in all of Germany at least 80 percent of the large and important buildings have been made wholly or partly of reinforced concrete. Concrete is especially desirable in wartime as it is highly resistant to bombings.

c. Bricks and Tiles. The manufacture of bricks and tiles is one of the oldest building industries in the Central Industrial Region. The raw materials, clay, sand, and lime occur in abundance in the region and there are probably many small works nearby. Since brick clay frequently is found with brown coal in the same geologic formation, the main brick producers in the region are the large brown coal firms. (Table 45 lists the principal producers.)

d. Lime and Limestone. Lime is used in the building industry for the manufacture of cement, and as the main ingredient in mortar, plaster, and whitewash. Besides its use in the building industry, lime, made by burning limestone, is important in the manufacture of steel, chemicals, sugar, and other products. Limestone is used as a building stone and in the production of macadam for road building.

Deposits of limestone are abundant throughout the Central Industrial Region. The chief quarries are located in the Harz mountains. The principal producer, Vereinigte Harzen Portland-zement-& Kalkindustrie AG, Wernigerode, has works at Elbingerode, Rübeland and Hüttenrode. There are also a number of smaller producers scattered throughout the region.

e. Plaster of Paris. Plaster of Paris is used in large quantities in the building industry for plastering walls and for other indoor work. The industry is concentrated along the edge of the Harz mountains and in northern Thüringen near supplies of the raw material, gypsum. The following principal producers in the region are also the chief producers in the German Reich:

Euling u. Mack AG	Nordhausen (Harz)
Euling & Co.	Nordhausen (Harz)
Berliner Gipswerek vorm. Mundt u. Kühne, Berlin	Works in the Harz

Plaster of Paris is also produced in Aschersleben, Bad Liebenstein, Dingelstädt, Ellrich (six plants), Osterode (three plants), Pössneck (three plants), Rottleberode, Rudolstadt and Wernigerode.

In the manufacture of Plaster of Paris, gypsum is crushed, ground, burned, and then pulverized. Fuel

Table 45.

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PRINCIPAL BRICK AND TILE MANUFACTURERS IN THE CENTRAL INDUSTRIAL REGION

Company	Location	Product	Production (pre-war)
Schöninger Ton & Hohlsteinwerke AG	Schöningen	bricks	15-20,000,000
* Riebecksche Montanwerke	Oberröblingen	bricks	4,459,400
* Riebecksche Montanwerke	Ammendorf	bricks	3,471,900
* Riebecksche Montanwerke	Deuben	bricks	----
* Braunkohlenwerke Bruckdorf	Dieskau	bricks	34,997,000
* Deutsche Grube AG	Halle	bricks	17,160,690
* Bitterfelder Louisen-Grube	Bitterfeld	bricks	2,464,400
* Braunschweigische Kohlenbergwerke AG	Helmstedt	bricks	3,976,000
Roussengrube AG	Cretzschwitz (nr. Gera)	roofing tiles	
Roudener Ziegelwerke AG	Voigtstedt	roofing tiles	
Muldensteiner Werke GmbH	Muldenstein (nr. Bitterfeld)	floor tiles	
Marienburger Mosaikplatten Fabrik AG	Broitzem (nr. Branschweig)	floor and wall tiles	
Schulze & Co.	Eisenberg	floor tiles	

* Brown coal firms

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consumption is high as it takes about 100 pounds of coal to burn a ton of gypsum.

f. Production and Consumption. Except for the production of bricks, statistics for production of the building earths industries in the Central Industrial Region are not available. It is probable, however, that since there are a number of important producers in the region, and since raw materials and fuel are readily available, production is sufficient to meet the requirements of the region.

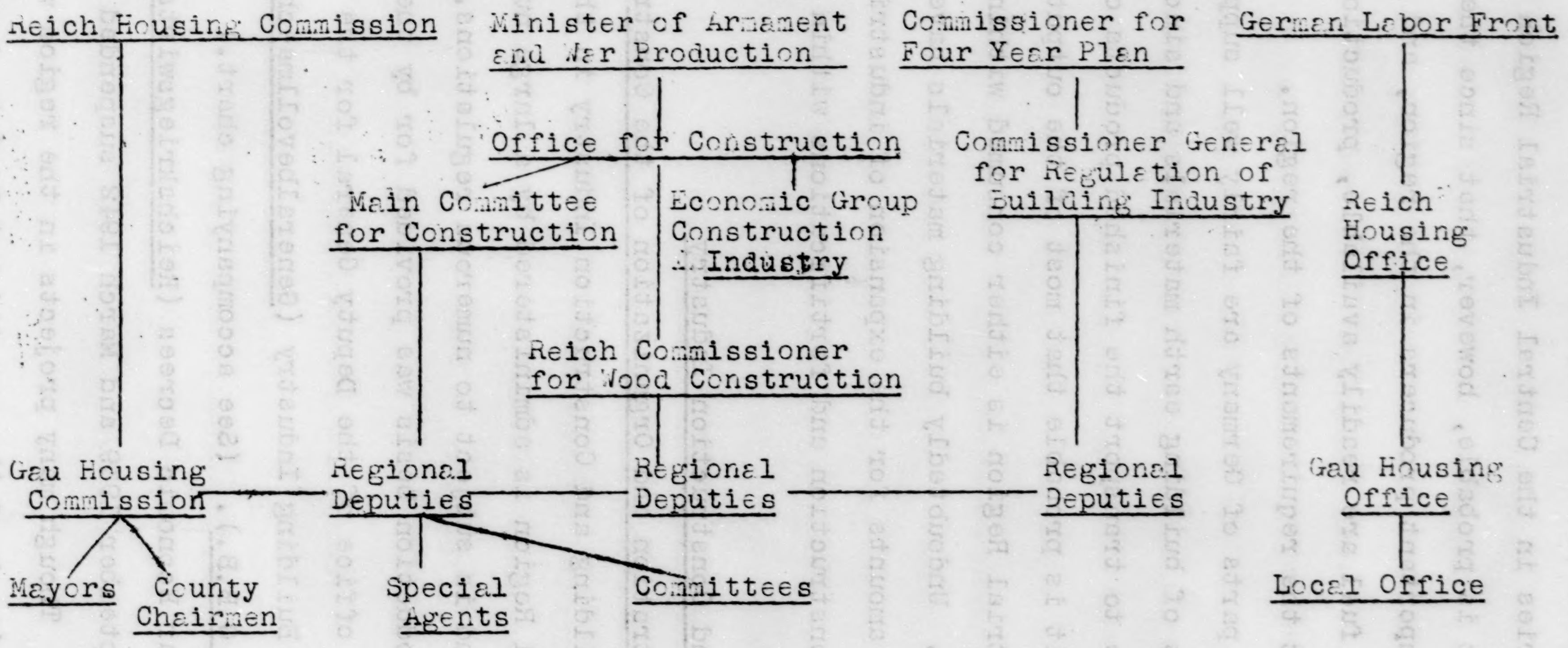
Since other parts of Germany are fairly well supplied with manufacturers of building earth materials and since it is more profitable to transport the finished products only short distances, it is probable that most of the output of the Central Industrial Region is either consumed within or nearby the region. Undoubtedly building materials have been required in large amounts for the expansion of industrial construction, reconstruction and fortifications within the region.

3. Building and Construction Industry

a. Administration and Organization of the Construction Industry. The Building and Construction Industry in the Central Industrial Region is administered by a large number of authorities, and is subject to numerous regulations. Its shift to a war production basis was provided for by the activities of the office of the Deputy General for the Regulation in the Building Industry (Generalbevollmaechtigter für das Bauwesen, G.B.B.). (See accompanying chart.)

The Reich War Economic Decrees (Reichskriegswirtschaftsverordnung) of September 1939 and March 1942 suspended all private building. Though many projects in the region were abandoned, the outbreak of the war did not lead to a cessation of construction in the Central Industrial Region. The importance of the region in defense considerations provided

CHART 2. ORGANIZATION OF THE CONSTRUCTION INDUSTRY


Reich Housing Commission
Minister of Armament and War Production
Commissioner for Four Year Plan
German Labor Front
Office for Construction
Commissioner General for Regulation of Building Industry
Main Committee for Construction
Economic Group Construction Industry
Reich Housing Office
Reich Commissioner for Wood Construction
Gau Housing Commission
Regional Deputies
Regional Deputies
Regional Deputies
Gau Housing Office
Mayors
County Chairmen
Special Agents
Committees
Local Office

for the construction and completion of factories as well as for the necessary housing for workers. The Four Year Plan guaranteed labor and building materials for construction of political and economic importance. Pre-war building statistics are listed in Table 46.

Building and construction is vested in a number of general government agencies at national, regional, and local levels. The Reich Housing Commission, the Commissioner General for Registration of Building Industries, and the Reich Commissioner for Wood Construction have the policy making function formerly located in the Reich Ministry of Labor. In the Central Industrial Region the jurisdiction of these authorities coincides with those of the military districts (Rüstungsinspektionen) and party Gaues located at Halle, Weimar, Dessau, and Hannover. Gau Commissars for the Central Industrial Region are appointed by the Reich Commissar for Social Housing. The Deputy General appoints district commissars in the military districts.

Construction work is regulated through the Reich Ministry of Ammunition and War Production (Reichsministerium für Rüstung und Kriegsproduktion). Regulation in the Central Industrial Region operates through a Main Committee for Construction (Hauptauschuss Bau), composed of experts who have knowledge of local conditions. The Committee functions through Gau Deputies (Bezirk- und Gaubeauftragte) for each military district.

Special Agents (Bezirkliche Vertrauensmänner) are appointed for each military district and for each quota claimant (Todt Organization, railways, army, air forces, etc.). The agents coordinate the various projects in the area, and are supervised by the Regional and Gau Deputies.

The Reich Commissioner for Wood Construction (Reichsbeauftragter für den Holzbau) operates in the area through the offices of the cartel and the regional deputies. His office assigns lumber for housing construction.

The Commissioner General for Regulation of Building Industry (Generalbevollmächtigter für die Regelung der Bauwirtschaft) functions through regional deputies (Baubevollmächtigter) in the Central Industrial Region. Their regions coincide with the military districts in the area. They allocate building material and limit the industry's function to most urgent needs, adjusting volume of construction to the capacity of the industry.

All building enterprises of the Central Industrial Region are registered with the Central Committee for the Building Trade of the Reich Minister for Armament. This also includes the building units maintained by the Reich Railways and Reichpost in the area.

Housing policies in the Central Industrial Region are in the hands of the Gauleiters. They are head of Gau directorates (Gauführungsstab) of the German Housing Relief Scheme (Deutsches Wohnungshilfswerk). Experts are appointed to aid and supplement their functions. Construction activity is carried on by other agencies in the area. Their functions are divided into new construction, emergency measures such as repairs, alterations and reconversions, and finance.

The German Labor Front established an organization, the Construction Aid for Social Housing, Cooperative Housing Construction Association (Bauhilfe für den Sozialen Wohnungsbau, Gemeinnützige GmbH). It provides for the supply and preparation of building materials, tools, machinery, transportation facilities and barracks. It is not concerned with independent construction work nor with manufacture of construction materials. The Neuland Association is the construction agency of the Labor Front and participates directly in the construction of apartments, workshops, and workers dwellings.

Housing for officials of the area is carried on through the local offices of the Housing Settlements for Officials (Beamtenheimstättenwerk). It is a savings bank organization for cooperative construction, and has carried on construction work in spite of increase of costs.

Housing problems of the chemical industry in the area are handled through a special requisition and allocation system set up by the Deputy General for Special Problems in the Chemical Industry and the Reich Office for Industrial Construction.

The Heimstaette and the De-Ge-Wo Association for the Extension of Housing Construction function as organs of Government housing policies. Their headquarters are in the Gau centers. As a consequence of decreased building only a small part of their funds have been invested in construction work, and they have collected funds for the financing of a post-war housing program.

The Construction Savings Banks (Bauparkassen) and the Union of German Mortgage Banks (Gemeinschaftsgruppe Deutscher Hypotheken Banken) report declines in building permits and size of loans in the area. On the other hand the contracts and deposits of the construction savings banks have increased. However, the building contracts provide only for money and do not make materials available. The goal of the depositors savings consequently is post-war home construction.

b. Construction Material Economy. The Central Industrial Region is self-sufficient in most primary building materials. (See preceding section "Building Earths Industries".) Construction in the area has been kept simple to save raw materials and labor. Priority lists were set up in the military districts (Wehrkreise Ranglisten).

Construction projects are divided according to military districts, contractors, purpose, and urgency. Building tools and materials are concentrated in the urgent construction projects of the region. Transportation facilities are allocated accordingly.

The Reich Minister for Armaments and Munitions passes on building plans to see that the greatest economy has been exercised in the use of building materials and construction methods. The Gau Administrative Commissars are empowered to grant exemptions to the directives issued by the General Commissioner for Construction.

Factories erected in the Central Industrial Region have been mainly built on concrete. A light sheet concrete used in assembly has been developed from experiments in steam hardened gas concrete. New suspension construction (Trage Konstruktionen und Spannbeton) has been used extensively. New construction utilizes standard size windows, doors, furniture, stairs, etc. Foundation construction has also been standardized. Rationalization was also applied to preparation of building sites and use of machinery. Water, gas, electricity and telephone connections are all installed in a single operation.

The plywood house (Sperrholzhütte) built of premanufactured plywood plates and light building sheets (Leichtbauplatten) is a technical innovation in the area. The plywood is made of excelsior (beechwood and pine) bound with magnesite, plaster and cement. The wood fiber sheets are also produced from wood by-products. Lignine (by-product in wood distillation) is used as a building material.

Ersatz materials are distributed in the area by the Purchasing and Distributing Cooperatives of Cardboard Manufacturers and Wood Turners (Kartonia Ein-und

Verkaufsgenossenschaft der Pappenfabrikanten und Holzschleifer).

Construction tools and machinery driven by fluid fuels were converted to solid fuels. This conversion also took place in the other building material enterprises.

c. Provisional Construction. The intensification of the war has caused housing and industrial construction to be of an emergency type. Statistics regarding the amount of such building are not available.

The German Auxiliary Dwelling Scheme (Das Deutsche Wohnungshilfwerk) was created to provide accommodation for the bombed out. Branch offices were established in the Gau centers, and simple auxiliary dwellings have been built. The houses are primitive, having a floor area of 22 square meters, with no lighting or drainage. The materials are ready-made sheets and plates of ersatz materials. The communes in the area provide the site, and payment is made by the Reich to the builder.

Gau and Kreis Billeting Committees regulate the Housing Relief Scheme. With the Gau Economic Chambers they assist in obtaining material and have evolved a standard type of dwelling for their own district. The pamphlet (Behelfsheim-Fibel) emergency home booklet, issued through the Gau, gives instruction in the erection of emergency homes.

Communal apartment dwellings for the youth have been erected by the Reich Youth and German Labor Front. Youth hostels have been built in the newly established industrialized regions of the Central Industrial Region. Local labor exchanges and factories are empowered to make requests of the local Gau for their construction.

Extensive barrack construction has been carried on by the Commissioner of Wood Construction to house the foreign and German workers brought into the area. Allocation and equipment is also under his direction. Production is highly standardized. Application for barracks are made in the regional offices of the Munitions Industry.

Vital maintenance and repair work are exempt from building restrictions. Air-raid damage has first priority. Labor and finished materials have become so scarce that it has become impossible to always effect the necessary repairs. The regional authorities (Landesbehörde) designate the agency to carry out the repairs.

Table 46. REAL INCREASE IN NUMBER OF DWELLINGS IN THE CENTRAL INDUSTRIAL REGION

(Per 1,000 Population)

State and Administration Districts	1928	1932	1933	1936	1937
Sachsen	4.8	2.2	2.8	5.0	5.1
Thüringen	4.5	1.9	2.5	3.9	4.6
Braunschweig	4.2	1.1	1.3	5.5	5.9
Anhalt	5.2	2.0	2.7	11.5	8.0
Deutsches Reich	5.0	2.3	2.7	4.7	4.8
Regional Avg.	4.67	1.8	2.32	6.4	5.9

4. Leather Industries

a. General. The Central Industrial Region has a long tradition of leather working and still contains a large number of tanneries and leather-working establishments, ranging in size from small shops to the Eduard Lingel firm in Erfurt. Together these establishments produce about 10 percent of the leather tanned in Germany, 28 percent of the gloves, 5 percent of the industrial transmission belts, and less than 4 percent of harnesses and saddles.

In 1936 the leather industries employed about 18,000 full-time workers. Tanning is a long and slow process, requiring months for the conversion of hides into leather, and the number of workers is low in proportion to output. Leather working is a more highly skilled operation and employs proportionally more skilled workers.

b. Tanning. Leather of all types is tanned in the region -- upper leather from calfskins, sole leather and belting from heavy hides, and kidskin for glove manufacture. Most of the hides and skins tanned are manufactured into leather goods within the region. Before the war there were at least 120 tanneries in the region, the majority of which were small shops with capacities for processing only a few thousand hides a year but capable of producing about 80 percent of the leather of the Central Industrial Region. Most of the small shops are located either north of the Harz Mountains or in Thüringen. The most important tanning center is Weida, about six miles south of Gera (Map No. 3245). In 1936 it possessed two large tanneries, the first employing 600 workers and processing more than 500,000 hides a year, and the second with 330 workers processed about 225,000 hides. Other somewhat smaller tanneries are located in Osterwieck (twelve miles NNW. of Halberstadt), Langensalza (ten miles N. of Gotha), and Braunschweig (see Table 47).

In peacetime about 2,000,000 hides a year were tanned in the Central Industrial Region, of which some 660,000 were procured locally and the remainder imported, chiefly from South America, the Balkans, and the Netherlands. Imports from conquered and satellite countries in part compensate for loss of overseas trade, and tanneries of the region are reported to be operating at about 75 percent of capacity. The loss of heavy hides imported from South America has, however, created an acute shortage of sole leather. Wood is in general use for shoe soles and IG Farben has been experimenting with the manufacture of synthetic leather, which is reported to be in use at the present time.

The tanning industry, originally located in the Central Industrial Region because of the availability of tanbark from the Harz Mountains and Thüringen, now produces very little of its tanning material. Chromium compounds for chemical tanning are manufactured within the region, but the more important quebracho bark or extract is imported from Argentina. The region has not as yet experienced a serious shortage of tanning materials since it receives preferential treatment from the government because of its central location within the country, and had accumulated large stocks before the war.

c. Shoe Manufacturing. Before the war, footwear of all types was manufactured in Central Germany, the most important centers being Erfurt and Burg, ten miles NNW. of Magdeburg (Table 47). Other factories are located at Magdeburg, Eisenach, Halberstadt, Halle, Mühlhausen, Nordhausen, and Oschersleben. Together these factories employed a total of about 10,000 workers, 2,000 in Burg and 2,500 in the two largest of the nine shoe factories in Erfurt. Pre-war production is reported to have been drastically reduced (possibly by as much as 50 percent) as a result of shortage of sole leather and the region is concentrating on the manufacture of military boots.

d. Other Leather Industries. The Central Industrial Region is one of the most important glove making centers of Germany. Gloves are manufactured chiefly in small shops rather than factories and the densest concentration of the industry is at Burg, Halberstadt, Jena, and Zeitz. The industry employs 1,700 workers and produces over a fourth of the gloves made in Germany. There is no information on current production but it is undoubtedly far below normal and limited largely to military gloves.

Table 47. PRINCIPAL TANNERIES AND LEATHERGOODS FACTORIES IN THE CENTRAL INDUSTRIAL REGION

	Firm	No. of employees (1936)
A. Tanneries		
Braunschweig	Braunschweigische Lederwerke	100
Langensalza	Diesel und Weisse KG	70
Langensalza	Lederfabrik Langensalza	100
Weida	Dix, Otto, und Albrecht	600
Weida	Franz Prasse	300
B. Shoe Factories		
Burg	Conrad Tack Schuhfabrik AG 1/	2,000
Erfurt	Eduard Lingel	1,500
Erfurt	L. M. Hess	1,000

1/ Ranks second to Eduard Lingel in number of shoes produced.

The manufacture of saddles and harnesses, although normally small, is concentrated in the leather manufacturing areas at Erfurt, Halberstadt, and Magdeburg. Production has not been curtailed and may even have been expanded because of the high priority assigned to harnesses and saddles for military use. Manufacture of industrial transmission belts, on the other hand, has probably declined both because of the shortage of heavy hides and because of the increasing use of synthetic substitutes.

5. Textile Industry

a. The Pre-War Situation. The beginnings of the regional textile industry date back to the early stage of Germany's industrialization. The textile industry, among the first to take root in the Central Industrial Region spread rather evenly throughout the heterogeneous areas now included within the region. Heavier concentration of the industry developed in eastern Thüringen, at Erfurt and Mühlhausen, and especially in Apolda, where the knitting mills accounted for 60 to 70 percent of total German hosiery production. Most of the mills of the region were small or medium-scale enterprises that specialized in a single phase of textile manufacture -- such as preparatory treatment of raw materials, spinning, weaving, dyeing, or finishing, seldom combining more than two of these phases -- and on a single type of fiber such as silk, cotton, wool, hemp, or jute. Progressive industrialization changed this picture only slightly. With a few exceptions, the region was characterized by a peculiar absence of large-scale, integrated, multiphase mills until the outbreak of the war.

Despite the prevalence of relatively small-scale mills, textile manufacture in the aggregate constituted an important factor in the pre-war industrial picture, rating sixth among the sources of regional employment as late as 1933. Before the war, the textile industry of the Central Industrial Region accounted for a little more than 4 percent of the total German production, both in value and in the number of workers employed.

The following table presents a summary of the net production value and employment in the regional textile industry in 1936 in relation to net production value and employment in all regional industries and in the total German textile industry.

NET PRODUCTION VALUES AND EMPLOYMENT, 1936

	CIR 1/ Textile Industry	CIR Total Industry	Reich Textile Industry	Ratio of CIR Textile to Total CIR Industry	Ratio of CIR Textile to German Textile Industry
Net Production Value in 1,000 RM.	123,010	2,804,000	2,839,746	4.4%	4.3%
Employment	37,452	639,065	911,716	5.8%	4.1%

1/ Central Industrial Region.

The most important phases of textile manufacture and by the same token the most important branches of the textile industry are spinning, weaving, and knitting. The relative importance of these branches varies in the three main textile areas of the region, spinning ranking first in Provinz Sachsen and weaving first in Hannover and Thüringen. Knitting, though ranking third in all three areas, is of negligible importance in Hannover. The table below presents a summary of the relative importance of each of these branches and shows the percentage that each contributes to the net production value of the total textile industry for Provinz Sachsen, Hannover, and Thüringen.

RELATIVE IMPORTANCE OF SPINNING, WEAVING, AND KNITTING

Branch of	Prov. Sachsen		Hannover		Thüringen	
Industry	Rank	Percent	Rank	Percent	Rank	Percent
Spinning Mills	1	36.2	2	27.7	2	22.5
Weaving Mills	2	26.5	1	56.	1	55.5
Knitting Mills	3	19.6	3	0.5	3	13.

b. Wartime Changes. The outbreak of war and inauguration of a policy of total industrial mobilization changed the position of the textile industry in the Central Industrial Region far more radically than in the case of most other industries. Though definite information on the present status is scarce, general knowledge of German industrial wartime policies and methods, supplemented by a few specific reports, provides a fairly accurate picture of existing conditions brought about through the policy of concentration on so-called "W-Firms" and the system of raw material allocation.

Under the concentration policy adopted immediately upon outbreak of war, industrial establishments were analyzed with regard to plant layout, size, equipment, productive capacity, and integration of multiphase operations. Those that were judged most efficient -- principally the large, fully integrated, and amply capitalized firms with modern equipment --

were classified as "W-firms". Production was concentrated in "W-firms" and the less efficient plants were closed down, their equipment transferred to "W-firms" or scrapped, their workers transplanted or retrained for employment in other vital war work, and their owners paid a small yearly indemnity. This policy was bound to play havoc with the overwhelming majority of the regional small and medium-sized mills and reports of the closing down of over 50 percent of the 800 mills in Provinz Sachsen and Thüringen, of removal, storage or scrapping of their equipment, of redesigning of mills for other war production and reassignment of their labor, bear out this inference.

Those of the small and medium-sized mills that did not fall victim to the concentration policy, were caught in the meshes of German textile raw material allocations. Wool, cotton, and silk had to be imported into Germany from overseas. To remove dependency on imports, Germany embarked, after 1933, on a policy of increasing its domestic output in wool, of intensifying its use of domestic natural fibers, and, above all, of starting a huge new industry for the production of synthetic rayon and staple fiber from cellulose (See: Synthetic Fibers, B 4 a). This ambitious program was in part financed by contributions from the textile industry, whose cooperation in the program was secured by the expedient of allocating synthetic fibers to firms participating in the financing program. The quota allocated to each manufacturer was in direct proportion to his share in the total capitalization of the respective synthetics plant.

During the years in which it prevailed, this system of allocating synthetic fibers in relation to financial participation must have led to the closing of small and medium-sized mills that had survived the concentration policy. These mills, largely undercapitalized and unable to provide financing of their own re-equipment with modern machinery, could not contribute towards financing new synthetic fiber plants and consequently received inadequate allocation of synthetic fibers. It is now reported that allocations on the basis of financial participation have been abandoned in favor of allocation based on needs and capacity.

The combined effects of the raw material allocation and the concentration policies must have led to a deep-rooted, permanent change in structure of the regional textile industry. By the end of the war the textile industry of the Central Industrial Region will probably include only a few very large, modern, multiphase, and thoroughly integrated mills in one or more of the regional textile centers such as Magdeburg, Mühlhausen, or Apolda instead of many smaller, single-phase plants, scattered throughout the region.

IX. TRANSPORTATION [1]

A. General Considerations

The Central German Industrial Region is well equipped with transportation facilities. The highly efficient railroad net carries a considerable proportion of the total German freight traffic and provides good passenger connections with important German inland points outside the region. The well-developed waterway facilities have been greatly improved by the completion of the Mittelland Canal, a vital link between western and eastern waterways. A dense system of fairly good roads is available for motor transport. Halle-Leipzig and various smaller airports offer connections with the German and other Axis airlines.

In the following description of the Central German transportation system, pre-war data have been presented in most instances. They have been supplemented by information on the present situation whenever possible. It can be stated in general that during the war the railroads have maintained a comparatively high efficiency. At present (July 1944) sufficient locomotives and cars are still available to supply the demands of war transportation. The state of equipment repair, though far from satisfactory, is not bad enough to endanger the safety of operations. Inland port capacities have been increased, new ports have been added, and the number of boats available is probably higher than before the war. Motor transport has been greatly curtailed and civilian air transport restricted.

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[1] 1. For a detailed description of the various modes of transportation in Germany, see Civil Affairs Handbook, Germany, Section XI, Transportation.

2. For a comprehensive study of the administration of German transportation, together with pertinent recommendations for the post-hostilities period, see the following Civil Affairs Guides and Appendices:
The Administration of German Railroads
The Administration of German Roads and Motor Transport
German Inland Waterways under Military Government

B. Railroads

1. Network and Services

a. Density. The density of the railroad network in the Central Industrial Region (Map No. 3264), as shown by the following table, is greater than that for the country as a whole, and is exceeded in Germany only by the network density in the Ruhr, the Saar, and Upper Silesia.

	Central Industrial Region	Percentage of Total Germany
Area (square miles)	12,819	7.1
Population	5,544,000	8.2
Length of railroad lines (miles)	3,347	9.1
Double-track lines (miles)	1,487	10.3
Electrified lines (miles)	206	12.2

The region has twenty-six miles of railroad line per 100 square miles of area, or six miles per 10,000 population, as compared with twenty miles and five miles, respectively, for Germany proper. Centers of great industrial activity, such as the Braunschweig, Magdeburg, Halle, Goslar, and Erfurt districts, have the densest rail grid, while the least development occurs in the Harz Mountain region.

b. Length of Line and Characteristics. The total length of railroad line in the Central Industrial Region is divided as follows:

	Kilometers	Miles
Principal national lines	2,822	1,757
Other national lines	1,860	1,160
Total national railroad	4,682	2,917
Private railroads	693	430
Total railroads	5,375	3,347

In addition there are 477 kilometers (297 miles) of light railways (Nebenbahnähnliche Kleinbahnen).

The German National Railroad (Deutsche Reichsbahn, abbreviated DR) operates most of the lines in the Central Industrial Region. The length of the national lines in this area represents 8.8 percent of the national lines in Germany proper.

All national lines are standard gauge, 4 feet 8½ inches. Of the total length of line in this region, 44.4 percent is double track and 6.1 percent is electrified, whereas the corresponding ratio for all lines in Germany proper is 39 percent and 4.6 percent, respectively.

c. Electrification. Electrification has made considerable progress. The electrification of the Magdeburg-Dessau-Leipzig line (69 km., 43 mi. 1/) was completed in 1922, and that of the second connection between Magdeburg and Leipzig via Halle-Schkeuditz (105 km., 65 mi. 1/) in 1934. In addition, the electrification project connecting Berlin with the South German electrified system via Halle/Leipzig, and Nürnberg has been pending since the middle 'thirties. Prior to the war work had been completed from Nürnberg to Saalfeld, and it has been continued during the war to Leipzig. (The sections of this line in the Central Industrial Region, Orlamunde-Weissenfels-Leipzig, have a length of 98 kilometers; 61 miles.) In this way existing Central German lines have become continuous with the large system of connected electrified lines in South Germany and Austria. Including short lines and connections, the total length of electrified lines in Central Germany is 332 km. (206 mi.).

Current for electric traction is produced at the Muldenstein power plant, three miles northeast of Bitterfeld. Brown coal is used as fuel for this plant. It is mined from open pits in the vicinity, and delivered by special railway hopper cars to the boilerhouse bunkers. The installed capacity of the power plant is estimated at 80,000 kw.

Current used on the Leipzig-Magdeburg lines is transmitted over 60-kv. lines to the Wahren, Marke, Gommern, and Köthen substations. That used on the Saalfeld-Leipzig line

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1/ Length of sections in Central Industrial Region.

is transmitted over a 100-kv. line to substations whose location it is not possible to determine. This 100-kv. power line also connects with a converter station (of unknown location outside the Central Industrial Region), and through this station with the thermal power plants of Bayernwerk -- the government-controlled electric power corporation in North Bavaria -- and with the Mittlere Isar and Walchensee hydro-electric power plants in South Bavaria, which are owned by corporations affiliated with the National Railroad.

d. Principal Lines and Main Connections. Table 48 shows the forty-six principal lines of the National Railroad within the Central Industrial Region, indicating the most important connections inside and outside the area. The table also gives statistical details for the length of line in the region, double-tracking and maximum axle-loads. Especially noteworthy are the high axle-loads permissible, determined by the weight of rails, the strength of bridges, and other construction characteristics of permanent way. The ratio of principal lines with an axle-load of twenty metric tons is higher in Germany than in any other large European system.

Table 49 lists seventy-six other lines operated by the National Railroad, and indicates the mileage within the region.

e. Services

i. Passenger. Table 48 also indicates the number of passenger trains, local and express, provided on the main national lines for the years 1939 and 1943. During the war the number of passenger trains, both local and express, has decreased. More frequent stops have been added, and the speed of the trains has been reduced in order to effect economies of service and fuel.

Table 48. PRINCIPAL NATIONAL RAILROADS IN THE CENTRAL INDUSTRIAL REGION

	Line	Principal Connections With*	Length of Line		Double Track		Maximum Axle Load metric tons	Passenger Services			
								1939		1943	
			kms.	miles	kms.	miles		Local Trains	Express Trains	Local Trains	Express Trains
1	(Lehrte-) Immendigan Arpke-Oebisfelde	Hannover, Stendal, Berlin	63	39	63	39	20	9	22	5	16
2	Oebisfelde-Bösdorf and Flechtingen-Magdeburg	Stendal and Salzwedel	42	26	7	4	20	12	-	8	-
3	Rosslau-Wittenberg-Plessa (-Hoyerswerda)	Dresden, Jüterbog, Berlin, Leipzig	122	76	122	76	20 a/ 18 b/	22 c/ 12 d/	5 c/ 2 d/	15 c/ 9 d/	2 c/ 1 d/
4	(Lehrte-) Hämelerwald-Peine-Braunschweig-Magdeburg	Hannover, Hildesheim, Hameln, Berlin, Leipzig	121	75	121	75	20	22	27	19	11
5	(Hildesheim-) Garbolzum-Braunschweig	Hannover, Hameln	30	19	-	-	20	11	5	8	3
6	(Hildesheim-) Derneburg-Halberstadt-Halle-Korbetha	Hildesheim, Hannover, Hameln, Leipzig, Dresden	202	126	202	126	20	11 e/ 9 f/ 9 g/ 20 h/	5 e/ 7 f/ 4 g/ 25 h/	8 e/ 6 f/ 7 g/ 13 h/	3 e/ 4 f/ 2 g/ 17 h/
7	(Vorwohle-) Naensen-Seesen-Borssum-Magdeburg	Göttingen, Kassel, Paderborn, Hannover	155	96	155	96	20	15 i/ 7 j/ 24 k/	7 i/ 3 j/ 11 k/	8 i/ 5 j/ 18 k/	7 i/ 4 j/ 7 k/
8	Wulften-Nordhausen-Halle	Northeim, Kassel, Göttingen, Paderborn, Eschwege	151	94	151	94	20	13 l/ 24 m/	5 l/ 10 m/	9 l/ 13 m/	1 l/ 5 m/

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Table 48 (cont'd)

Line	Principal Connections With*	Length of Line		Double Track		Maximum Axle Load metric tons	Passenger Services			
							1939		1943	
		kms.	miles	kms.	miles		Local Trains	Express Trains	Local Trains	Express Trains
9 (Eichenberg-) Herlingenstadt-Wolkramshausen	Kassel, Eschwege, Göttingen, Warburg	50	31	50	31	20	14	9	6	4
10 Wartha-Erfurt-Weimar-Grossheringen	Kassel, Bebra, Meiningen, Saalfeld, Flöha, Leipzig	126	78	126	78	20	36	25	30	16
11 Eisenach-Bad Salzungen	Bebra, Kassel, Eschwege, Meiningen, Lichtenfels, Hersfeld	27	17	27	17	20	13	4	10	1
12 Gotha-Leinefelde	Saalfeld, Kassel, Meiningen	67	42	-	-	20	15	2	10	-
13 Arnstadt-Neudietendorf-Erfurt	Saalfeld, Lichtenfels, Meiningen	23	14	23	14	20	23	10	17	4
14 Erfurt-Wolkramshausen-Nordhausen	Kassel, Saalfeld, Meiningen	79	49	8	5	20	18	2	20	-
15 Erfurt-Sangerhausen	Saalfeld, Meiningen, Leipzig	70	44	-	-	20	20	3	21	-
16 Orlamünde-Jena-Weissenfels-Markranstädt (-Leipzig)	Saalfeld, Lichtenfels, Leipzig, Chemnitz, Dresden	98	61	98	61	20	7 n/ 9 o/	12 n/ 18 o/	4 n/ 2 o/	7 n/ 12 o/
17 Weimar-Jena-Gera-Gössnitz-Dennheritz	Saalfeld, Plauen, Eger, Regensburg, Chemnitz, Dresden	113	70	78	49	20 p/ 18 q/	15 r/ 28 s/	4 r/ 2 s/	15 r/ 12 s/	1 r/ - s/

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Table 48 (cont'd)

Line	Principal Connections With*	Length of Line		Double Track		Maximum Axle Load metric tons	Passenger Service			
							1939		1943	
		kms.	miles	kms.	miles		Local Trains	Express Trains	Local Trains	Express Trains
18 (Saalfeld-) Neunhofen-Gera	Saalfeld, Lichtenfels, Regensburg	37	23	37	23	20	11	5	11	2
19 (Plauen-) Syrau-Feilitzsch (-Hof)	Hof, Plauen, Eger, Dresden, Regensburg	35	22	35	22	20 t/ 18 u/	23	19	14	13
20 Greiz-Wünschendorf-Gera-Weissenfels	Plauen, Eger, Regensburg, Leipzig, Flöha, Dresden	93	58	60	37	20 v/ 16 w/	20 v/ 25 w/	2 v/ 6 w/	8 v/ 18 w/	1 v/ 2 w/
21 (Plauen-) Limbach-Altenburg-Deutzen (-Leipzig)	Leipzig, Plauen, Eger, Regensburg, Dresden Saalfeld	74	46	74	46	20 x/ 16 y/	42	28	28	15
22 Altenburg-Zeitz	Leipzig, Plauen, Dresden, Riesa, Zwickau	25	16	25	16	18	16	-	9	-
23 Zeitz-Pegau-Gross Dalzig (-Leipzig)	Leipzig, Plauen, Zwickau	20	12	20	12	20	20	6	15	2
24 (Elze-) Alfred-Kreiensen-Edesheim (-Northeim)	Elze, Hannover, Göttingen, Kassel, Eschwege, Paderborn, Northeim	33	21	33	21	20	17	24	10	15
25 Herzberg-Seesen	Hildesheim, Hannover, Vorwohle, Kassel	32	20	-	-	20	13	1	8	-
26 Vienenburg-Goslar-Neuekrug Hahausen	Kassel, Hannover, Vorwohle	29	18	29	18	20	26	10	18	5
27 Braunschweig-Bad Harzburg	Hannover, Uelzen, Celle, Hamburg	47	29	47	29	18 z/ 20 aa/	32	2	16	1
28 Wolfenbüttel-Jerxheim-Helmstedt	Hildesheim, Hannover, Salzwedel, Berlin	52	32	41	26	17 bb/ 20 cc/	24	-	11	-

Table 48 (cont'd)

Line	Principal Connections With*	Length of Line		Double Track		Maximum Axle Load metric tons	Passenger Services			
							1939		1943	
		kms.	miles	kms.	miles		Local Trains	Express Trains	Local Trains	Express Trains
29 Schöningen-Eilsleben	Salzwedel, Stendal, Berlin	17	11	17	11	20	11	8	7	8
30 Halberstadt-Oschersleben	Biederitz, Stendal, Brandenburg, Berlin	20	12	20	12	20	21	5	9	3
31 Halberstadt-Wegeleben-Thale	Biederitz, Stendal, Brandenburg, Berlin	21	13	21	13	20 dd/ 18 ee/	19	-	11	-
32 Aschersleben-Güsten-Schönebeck-Magdeburg	Biederitz, Stendal, Brandenburg, Berlin	56	35	56	35	20	38	3	26	-
33 Güsten-Köthen-Dessau	Leipzig, Wiesenburg, Berlin	54	34	54	34	20	37	3	26	1
34 Blankenheim-Güsten-(Barby-Güterglück)-Lindau- (Nedlitz-Wiesenburg)	Leipzig, Berlin, Biederitz, Belzig, Stendal	87	54	87	54	20	24	7	14	1
35 Magdeburg-Halle-Schkeuditz (-Leipzig)	Leipzig, Berlin, Stendal, Chemnitz, Dresden	105	65	105	65	18 ff/ 20 gg/	37	35	24	14
36 Köthen-Aken	Leipzig	13	8	-	-	18	14	-	8	-
37 Magdeburg-(Biederitz-Zerbst)-Dessau-(Rackwitz-Leipzig)	Leipzig, Berlin, Stendal, Belzig, Chemnitz, Riesa, Dresden	67	42	67	42	20 hh/ 18 ii/	32 jj/ 23 kk/	10 jj/ 30 kk/	26 jj/ 18 kk/	4 jj/ 24 kk/
38 Rosslau-Medewitz (-Wiesenburg)	Leipzig, Berlin, Wiesenburg, Belzig	24	15	-	-	20	14	4	10	2
39 Halle-Wittenberg-Blonsdorf (-Jüterbog)	Leipzig, Dresden, Jüterbog, Berlin	87	54	87	54	20	26	39	18	23

Table 48 (cont'd)

Line	Principal Connections With*	Length of Line		Double Track		Maximum Axle Load metric tons	Passenger Services			
							1939		1943	
		kms.	miles	kms.	miles		Local Trains	Express Trains	Local Trains	Express Trains
40 Halle-Eilenberg-Torgau-Beutersitz	Leipzig, Dresden, Jüterbog, Berlin, Cottbus, Frankfurt (Oder), Sorau, Liegnitz, Breslau	103	64	103	64	20	11	7	9	3
41 (Leipzig-) Pönitz-Eilenberg	Leipzig, Dresden	11	7	11	7	20	15	5	11	4
42 (Riesa-) Jacobsthal-Linda (-Jüterbog)	Riesa, Döbeln, Dresden, Jüterbog, Flöha, Berlin	56	35	56	35	20	6	4	5	2
43 (Dresden-) Frauenhain-Elsterwerda-(Hohenleipisch-D. Kirchhain-) Walddrehna-Gehren (-Uckro)	Dresden, Berlin, Uckro, Cottbus, Zossen, Riesa, Döbeln	22	14	22	14	20	8	14	5	9
44 Magdeburg Rothensee-Tangerhütte (-Stendal)	Stendal Schwerin, Berlin, Wittenberge	33	21	33	21	20	14	11	9	4
45 Langelsheim-Grauhof	Northeim, Kassel, Vorwohle	11	7	-	-	20	10	-	6	-
46 Halle-Schkeuditz (-Leipzig)	Leipzig, Dresden, Chemnitz, Flöha	19	12	19	12	20	**	**	**	**
47 Total Principal Lines		2822	1757	2390	1487					

* Connections with major centers outside the area under consideration.

** Freight line.

Table 48 (cont'd)

Footnotes

a/ Rosslau-Meinsdorf and Falkenberg-Kohlfurt

b/ Meinsdorf-Falkenberg

c/ Wittenberg-Rosslau

d/ Wittenberg-Plessa

e/ (Hildesheim-) Derneburg-Goslar

f/ Goslar-Halberstadt

g/ Halberstadt-Halle

h/ Halle-Korbetha

i/ Magdeburg-Oschersleben

j/ Oschersleben-Jerxheim

k/ Jerxheim-Naensen

l/ Wulften-Nordhausen

m/ Nordhausen-Halle

n/ Orlamünde-Naumburg

o/ Naumburg-Leipzig

p/ Weimar-Gera-Ronneburg

q/ Ronneburg-Gössnitz-Glauchau

r/ Weimar-Gera

s/ Gera-Dennheritz

t/ Plauen-Schönberg

u/ Schönberg-Hof

v/ Weissenfels-Gera

w/ Gera-Greiz-Plauen

x/ Altenburg-Gaschwitz; Herlasgrün-Reichenbach

y/ Reichenbach-Altenburg

z/ Bad Harzburg-Vienenburg

aa/ Vienenburg-Braunschweig

bb/ Wolfenbüttel-Jerxheim

cc/ Jerxheim-Helmstedt

dd/ Halberstadt-Wegeleben

ee/ Wegeleben-Thale

ff/ Magdeburg-Schönebeck

gg/ Schönebeck-Halle-Leipzig

hh/ Magdeburg-Biederitz; Königsborn-Rosslau; Dessau-Leipzig

ii/ Rosslau-Dessau

jj/ Magdeburg-Bitterfeld

kk/ Bitterfeld-Leipzig

Table 49. OTHER NATIONAL LINES

		Length of Line	
		Kms.	Miles
1.	Peine-Plockhorst	17	11
2.	(Celle-) Uetze-Plockhorst-Braunschweig	41	26
3.	Braunschweig-Gifhorn Stadt	36	22
4.	Braunschweig-Fallersleben	30	19
5.	Schandelah-Oebisfelde	30	19
6.	Helmstedt-Oebisfelde	36	22
7.	Braunschweig-Derneburg-Seesen	75	47
8.	Wolfenbüttel-Drutte	5	3
9.	(Bodenburg-) Sehlem-Bad Gandersheim (-Kreiensen)	19	12
10.	Eilsleben-Blumenberg	25	16
11.	Blumenberg-Schönebeck	26	16
12.	Blumenberg-Etgersleben	9	6
13.	Etgersleben-Förderstedt	18	11
14.	Etgersleben-Stassfurt Leopoldshall	24	15
15.	Jerxheim-Neinhagen	33	21
16.	Quedlinburg-Frose	30	19
17.	Heudeber-Danstedt-Goslar	43	27
18.	Langelsheim-Altenau	34	21
19.	Scharzfeld-St. Andreasberg	15	9
20.	Bleicherode-Herzberg-Siebental	46	29
21.	Salzderhelden-Einbeck	4	3
22.	Berga Kelbra-Stolberg	15	9
23.	Mansfeld-Wippra	20	12
24.	Teutschenthal-Salzmünde	9	6
25.	Calbe West-Bernburg	17	11
26.	Baalberge-Könnern	12	8
27.	Biendorf-Gerlebogk	7	4
28.	Leinefelde-Wulften	40	25
29.	Silberhausen-Geismar (-Schwebda)	27	17
30.	Treffurt-Wartha	30	19
31.	Treffurt-Mühlhausen	32	20
32.	Dorndorf-Kaltennordheim	28	17
33.	Vacha-Bad Salzurgen	16	10
34.	Gerstungen-Dankmarshausen-Vacha	25	16
35.	(Hilders-) Tann-Vacha	29	18
36.	(Hünfeld-) Treischfeld-Wenigentaft Mansbach	5	3
37.	Bufleben-Grossenbehringen	17	11
38.	Erfurt (north)-Langensalza	32	20
39.	Ballstädt-Straussfurt	22	14
40.	Fröttstadt-Georgenthal	19	12
41.	Gotha-Georgenthal-Tambach Dietharz	19	12
42.	Wutha-Ruhla	7	4
43.	Straussfurt-Grossheringen	53	33
44.	Bretleben-Sondershausen	31	19
45.	Kölleda-Laucha	39	24
46.	Artern-Naumburg	56	35
47.	Oberröblingen-Allstedt	7	4
48.	Bitterfeld-Stumsdorf	21	13
49.	Merseburg-Schafstädt	18	11
50.	Angersdorf-Ammendorf	10	6
51.	Merseburg-Querfurt	35	22
52.	Naumburg-Teuchern	22	14
53.	Camburg-Zeitz	37	23
54.	Krossen-Porstendorf	29	18
55.	Niederpöllnitz-Münchenbernsdorf	9	6

Table 49 (cont'd)

		Length of Line	
		Kms.	Miles
56.	Triptis-Lobenstein	55	34
57.	Lobenstein-Blankenstein (-Marxgrün)	8	5
58.	(Saalfeld-) Heinersdorf-Lobenstein	7	4
59.	Werdau-Wünschendorf-Mehltheuer	70	44
60.	Schönberg-Schleiz	15	9
61.	Schönberg-Hirschberg	20	12
62.	Greiz-Neumark	14	9
63.	Ronneburg-Meuselwitz	27	17
64.	Pegau-Gross Stolpen (-Neukieritzsch)	8	5
65.	(Gaschwitz-) Rüssen-Meuselwitz	20	12
66.	Deuben-Grosskorbetha	23	14
67.	Pörsten-Lausen	18	11
68.	Markranstädt-Lausen	4	3
69.	Merseburg-Dölzig (-Leipzig)	20	12
70.	Vitzenburg-Oberöbblingen	31	19
71.	Klein Wittenberg-Straach	7	4
72.	Wittenberg-Eilenburg	61	38
73.	Pretszch-Torgau	23	14
74.	Torgau-Belgern	17	11
75.	(Wurzen-) Lüptitz-Eilenburg	16	10
76.	Elsterwerda-Prösen (-Riesa)	5	3
		1,860	1,160

Because of the population density and the great industrialization of Central Germany, there has been a comparatively higher development of commutation services here than in many other parts of the country. During the war, however, this type of service has also been greatly reduced. Commuting facilities are listed in Table 50. Of the 128 routes given, the number of trains has decreased on 106, has stayed the same on eleven, and has increased on eleven. Increases have occurred only where industrial development demands them; the jump from four trains in 1939 to ten trains in 1943 between Arnstadt and Ichtershausen is the outstanding example.

Map No. A3051 shows passenger services in the Central Industrial Region in 1928. There had been no fundamental change in the general picture it provides prior to the outbreak of war.

ii. Freight. Map A3050 gives the general picture of German railroad freight services in 1928, but, as in the

Table 50. COMMUTING TRAINS

			Number of Trains	
From		To	1939	1943
Arnstadt	1.	Erfurt	21	14
	2.	Saalfeld	7	5
	3.	Plaue	17	18
	4.	Ichtershausen	4	10
	5.	Suhl	17	8
Aschersleben	1.	Güsten	16	16
	2.	Quedlinburg	12	9
	3.	Schadeleben	8	6
	4.	Bernburg	14	10
	5.	Halberstadt	13	5
	6.	Sandersleben	13	12
Bitterfeld	1.	Leipzig	25	16
	2.	Wittenberg	16	14
	3.	Stumsdorf	11	8
	4.	Dessau	21	16
	5.	Halle	19	14
Braunschweig	1.	Wolfenbüttel	16	16
	2.	Drütte	13	15
	3.	Derneburg	11	5
	4.	Schöningen (south)	3	3
	5.	Mattierzoll	3	3
	6.	Oebisfelde	8	3
	7.	Isenbüttel Gifhorn	8	4
	8.	Fallersleben	6	6
	9.	Plockhorst	6	4
	10.	Lehrte	11	7
	11.	Helmstedt	9	6
	12.	Borssum	11	12
	13.	Hildesheim	9	7
Dessau	1.	Osterburg	5	4
	2.	Pretzier	5	4
	3.	Wiesenburg	9	5
	4.	Rosslau	28	14
	5.	Köthen	22	13
	6.	Gohrau Rehsen	3	5
	7.	Güterglück	17	12
	8.	Wörlitz	8	8
	9.	Wittenberg	12	12
Eisenach	1.	Gotha	11	11
	2.	Gerstungen	13	7
	3.	Treffurt	7	5
	4.	Bad Salzungen	13	10
Erfurt	1.	Gotha	19	14
	2.	Weimar	21	14
	3.	Sömmerda	15	15
	4.	Straussfurt	11	12
	5.	Langensalza	8	4
	6.	Nottleben	9	7
Gera	1.	Zeitz	16	8
	2.	Weida	10	6
	3.	Göschwitz	11	9
	4.	Wuitz Mumsdorf	1	5
	5.	Ronneburg	15	8
	6.	Wünschendorf	18	6
	7.	Greiz	11	6

Table 50 (cont'd)

From	To	Number of Trains 1939	 1943
Goslar	1. Vienenburg	12	8
	2. Seesen	9	5
	3. Ringelheim	11	9
	4. Altenau	9	5
	5. Bad Harzburg	16	10
	6. Wernigerode	14	6
	7. Heudeber Danstedt	17	11
Gotha	1. Friedrichroda	18	8
	2. Bad Tennstedt	5	4
	3. Grossenbehringen	7	5
	4. Mühlhausen	12	7
	5. Gräfenroda	9	8
	6. Georgenthal	26	18
Halberstadt	1. Jerxheim	4	5
	2. Blankenburg	11	7
	3. Wernigerode	13	10
	4. Wegeleben	19	8
	5. Thale	11	9
	6. Oschersleben	7	8
Halle	1. Köllme	11	5
	2. Merseburg	28	15
	3. Eisleben	15	11
	4. Könnern	12	11
	5. Köthen	12	9
	6. Leipzig	21	18
	7. Weissenfels	28	12
	8. Eilenburg	10	7
	9. Mücheln	8	5
Jena	1. Eisenberg	9	5
	2. Camburg	20	8
	3. Orlamünde	12	7
	4. Weimar	13	12
	5. Gera	11	9
Magdeburg	1. Biederitz	18	14
	2. Schönebeck	20	13
	3. Oschersleben	13	8
	4. Eilsleben	11	6
	5. Calbe	11	10
	6. Zerbst	13	9
	7. Wolmirstedt	13	9
	8. Loburg	7	5
	9. Haldensleben	12	8
Merseburg-Leuna	1. Querfurt	7	7
	2. Schafstadt	10	8
	3. Leipzig	7	8
	4. Weissenfels	19	12
Mühlhausen	1. Treffurt	7	5
	2. Leinefelde	8	7
	3. Ebeleben	4	3
	4. Langensalza	14	9

Table 50 (cont'd)

From		To	Number of Trains 1939	1943
Nordhausen	1.	Sangerhausen	13	6
	2.	Bernterode	10	4
	3.	Herzberg	9	7
	4.	Sondershausen	10	6
	5.	Ilfeld	13	6
Oschersleben	1.	Jerxheim	6	5
	2.	Schöningen	6	5
Peine	1.	Plockhorst	4	3
	2.	Hannover	11	7
Weimar	1.	Apolda	17	10
	2.	Naumburg	12	8
	3.	Bad Berka	10	7
	4.	Buttelstedt	9	4
Wittenberg	1.	Jüterbog	15	11
	2.	Falkenberg	10	9
	3.	Bad Schmiedeberg	9	7
	4.	Rosslau	12	10
	5.	Piesteritz	15	16
Zeitz	1.	Weissenfels	11	11
	2.	Leipzig	18	13
	3.	Camburg	6	4
	4.	Teuchern	6	3
	5.	Altenburg	12	7

case of the passenger-service map, there were no important changes before the war.

f. Private Railroads. Some 430 miles, or nearly 13 percent of the total length of line in the Central Industrial Region, are privately operated. With 7 percent of the country's total area, this region includes almost 18 percent of German private railroads. All private railroads of Central Germany are standard gauge -- 4 feet, 8½ inches (see Table 51). Light railroads in the region are listed in Table 52.

2. Facilities

a. Repair Shops. Major work shops (Ausbesserungswerke) and running repair shops (Betriebswerke) are responsible for the maintenance of equipment. Major repair shops are designed for major repair and general overhaul of equipment; the more numerous running repair shops make light and incidental repairs.

Table 51. PRIVATE RAILROADS IN THE CENTRAL INDUSTRIAL REGION

	Line	Length km.	Length mi.	Owner	Operator
1	Braunschweig-Schöningen Süd	42.5	26	Braunschweig-Schöninger Eisenbahn AG	Allgemeine Deutsche Eisenbahnbetriebs GmbH, Berlin-Wilmersdorf
2	Braunschweig-Hötzum-Mattierzoll Süd	37.6	23	"	"
3	Dessau-Wörlitz-Gohran Rehsen	24.0	15	Dessau Wörlitzer Eisenbahn-Anhaltische Landes-Eisenbahngesellschaft, Dessau	Anhaltische Landes-Eisenbahngemeinschaft, Dessau
4	Gera Pforten-Wuitz Mumsdorf	31.2	19	Gera Meuselwitz-Wuitzer Eisenbahn AG, Gera	Gera Meuselwitz-Wuitzer Eisenbahn AG, Gera
5	Alexisbad-Harzgerode	2.9	2	Gernroder-Harzgeroder Eisenbahn-Gesellschaft AG, Gernrode	Anhaltische Landes-Eisenbahngemeinschaft, Dessau
6	Gernrode-Eisfelder Talmühle	44.3	28	"	"
7	Stiege-Hasselfelde	4.9	3	"	"
8	Wenigentaft-Manback-Öchsen	10.1	6	GmbH Hazemeier, Masbach	Centralverwaltung für Secondärbahnen Hermann Bachstein GmbH, Berlin
9	Blankenburg (Harz)-Thale Bodetal-Quedlinburg	23.0	14	Halberstadt-Blankenburger Eisenbahn-Gesellschaft, Blankenburg (Harz)	Halberstadt-Blankenburg Eisenbahn-Gesellschaft, Blankenburg
10	Elbingerode West-Drei Annen Hohne	5.5	3	"	"
11	Halberstadt-Blankenburg-Tanne	49.0	31	"	"
12	Langenstein-Derenburg	5.5	3	"	"

Table 51 (cont'd)

	Line	Length		Owner	Operator
		km.	mi.		
13	Peine-Grossilsede	6.5	4	Ilseder-Hütte, Grossilsede	Peine-Ilsede Eisenbahn, Grossilsede
14	Haldensleben-Eilsleben	31.7	20	Neuhaldenslebener Eisenbahn-Gesellschaft, Neuhaldensleben	Centralverwaltung für Secundärbahnen, Hermann Bachstein GmbH, Berlin
15	Nauendorf (Saalkr) Nord-Gerlebogk	16.5	10	Eisenbahn-Gesellschaft Nauendorf-Gerlebogk, Berlin	GmbH Lenz u. Co, Berlin-Wilmersdorf
16	Falkenberg-Langengrassau (-Uckro-Beeskow)	46.3	29	Niederlausitzer Eisenbahn-Gesellschaft, Berlin-Wilmersdorf	Allgemeine Deutsche Eisenbahnbetriebs GmbH, Berlin-Wilmersdorf
17	Nordhausen-Wernigerode	60.9	38	Nordhausen-Wernigeroder Eisenbahn-Gesellschaft, Wernigerode (Harz)	Nordhausen-Wernigeroder Eisenbahn-Gesellschaft, Wernigerode (Harz)
18	Drei Annen Hohne-Brocken	18.9	12	"	"
19	Mühlhausen (Thür)-Ebeleben	25.6	16	Eisenbahngesellschaft Mühlhausen-Ebeleben	GmbH Lenz u Co, Berlin-Wilmersdorf
20	Oschersleben (Bode) Nordost-Schönigen Süd	24.1	15	Oschersleben-Schöniger Eisenbahn-Gesellschaft, Braunschweig	Allgemeine Deutsche Eisenbahnbetriebs GmbH, Berlin-Wilmersdorf
21	Wasserleben-Börssum	21.3	13	Osterwieck-Wasserlebener Eisenbahn-Aktiengesellschaft, Berlin	Centralverwaltung für Secundärbahnen Hermann Bachstein GmbH, Berlin
22	Arnstadt-Ichtershausen	5.1	3	Süddeutsche Eisenbahn-Gesellschaft, Darmstadt	Süddeutsche Eisenbahn-Gesellschaft, Darmstadt

Table 51 (cont'd)

	Line	Length km.	Length mi.	Owner	Operator
23	Hohenebra-Ebeleben	8.7	5	Süddeutsche Eisenbahn-Gesellschaft, Darmstadt	Centralverwaltung für Secundärbahnen Hermann Bachstein GmbH, Berlin
24	Braunlage-Walkenried	24.3	15	Südharz Eisenbahn Gesellschaft	Centralverwaltung für Secundärbahnen Hermann Bachstein GmbH, Berlin
25	Tanne-Brunnenbachsmühle	8.3	5	"	"
26	Oldisleben-Esperstedt (Kyffh)	4.2	3	Thüringische Eisenbahn AG	"
27	Greussen-Ebeleben-Keula (Thür)	37.1	23	"	"
28	Weimar-Buttelstedt-Grossrudestedt	34.2	21	"	"
29	Weimar-Bad Berka-Blankenhain	23.5	15	"	"
30	Bad Berka-Kranichfeld	8.1	5	"	"
31	Wurtha-Ruhla	7.3	5	"	"
	Total	693.1	430		

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Table 52. LIGHT RAILROADS IN THE CENTRAL INDUSTRIAL REGION

	Line	Length km.	mi.	Owner	Operator	Seat of Agency in Charge of Administrative Regulation 1/
1	Aschersleben-Nienhagen	454	28	Aschersleben-Schneidlingin-Nienhagen Eisenbahn AG, Berlin-Wilmersdorf	Allgemeine Deutsche Eisenbahnbetriebs GmbH, Berlin-Wilmersdorf	Magdeburg
2	Bebitz (Saalkr)-Alsleben	8.4	5	Eisenbahn AG Bebitz-Alsleben, Beesenaubingen	Eisenbahn AG Bebitz-Alsleben, Merseburg	Merseburg
3	Berga Kebra-Artern	28.8	18	Kyffhäuser Kleinbahn AG, Kelbra (Kyffh.)	Kyffhäuser Kleinbahn AG, Merseburg	Merseburg
4	Bergwitz-Kemberg	6.0	4	Kleinbahn Bergwitz-Kemberg GmbH, Kemberg, Bez Halle	Kleinbahn Bergwitz-Kemberg GmbH, Merseburg	Merseburg
5	Burgkemnitz-Golpa	6.2	4	2/	Golpa	2/
6	Delitzsch (Stadt)-Rachwitz Guntheritz	26.9	17	Delitzscher Kleinbahn AG, Merseburg	Delitzscher Kleinbahn AG, Merseburg	Merseburg
7	Erfurt-Nottleben	21.2	13	Eisenbahn AG Erfurt-Nottleben, Erfurt	Eisenbahn AG Erfurt-Nottleben, Merseburg	Erfurt
8	Gittelde-Bad Grund	5.5	3	Kleinbahn Gittelde-Grund GmbH, Bad Grund	Landeskleinbahnamt der Provinz Hannover	Braunschweig (Staatsministerium)
9	Haldensleben-Alvensleben Dönstedt	10.7	6	Eisenbahn AG Gardelegen-Neuhaldensleben-Weferlingen, Haldensleben	Eisenbahn AG Gardelegen-Neuhaldensleben-Weferlingen, Haldensleben	Magdeburg
10	Haldensleben-Wannefeld (-Gardelegen)	22.9	14	"	"	Magdeburg
11	Haldensleben-Weferlingen	31.9	20	"	"	Magdeburg

1/ In Preussen: Regierungspräsident.
2/ No information.

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Table 52 (cont'd)

	Line	Length km.	Length mi.	Owner	Operator	Seat of Agency in Charge of Administrative Regulation
12	Halle (Saale)-Hettstedt	44.6	28	Halle-Hettstedter Eisenbahn-Gesellschaft, Halle	GmbH Lenz u Co., Berlin-Wilmersdorf	Merseburg
13	Gerbstedt-Friedeburg	9.4	6	"	"	Merseburg
14	Heudeber Danstedt-Mattierzoll	20.8	13	Eisenbahn AG Heudeber-Mattierzoll, Merseburg	Betriebsleitung der Eisenbahn AG Heudeber-Mattierzoll, Hessen (Braunschweig)	Magdeburg
15	Könnern-Rothenburg	5.4	3	Eisenbahn AG Könnern-Rothenburg, Merseburg	Eisenbahn AG Könnern-Rothenburg, Merseburg	Merseburg
16	Langensalza-Haussömmern	27.4	17	Langensalzaer Kleinbahn AG, Merseburg	Langensalzaer Kleinbahn AG, Merseburg	Erfurt
17	Magdeburg-Schönebeck	16.0	10	-	Located in Magdeburg	-
18	Marienborn-Beendorf	4.6	3	Marienborn-Beendorfer Kleinbahn Gesellschaft, Beendorf	Marienborn-Beendorfer Kleinbahn Gesellschaft, Beendorf	Magdeburg
19	Neuburxdorf-Mühlberg (Elbe)	7.5	5	Eisenbahn AG Neuburxdorf-Mühlberg, Mühlberg	Vorstand der Eisenbahn AG Neuburxdorf-Mühlberg, Merseburg	Merseburg
20	Oebisfelde-Parsau (-Wittingen)	14.4	9	Kleinbahn Wittingen-Oebisfelde GmbH, Wittingen	Kleinbahn Wittingen-Oebisfelde GmbH, Wittingen	Braunschweig (Staatsministerium)
21	Osterode (Harz)-Kreisen 1/	32.7	20	Kreisbahn Osterode (Harz)	Kreisbahndirektion in Osterode (Harz)	Hildesheim
22	Prettin-Annaburg	12.5	8	Prettin-Annaburger Eisenbahn AG, Merseburg	Prettin-Annaburger Eisenbahn AG, Merseburg	Merseburg
23	Rackwitz Güntheritz-Krensitz	10.4	7	Delitzscher Kleinbahn AG, Merseburg	Delitzscher Kleinbahn AG, Merseburg	Merseburg

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1/ Narrow gauge.

Table 52 (cont'd)

	Line	Length km.	 mi.	Owner	Operator	Seat of Agency in Charge of Administrative Regulation
24	Schildau-Mockrehna	10.5	7	Eisenbahn AG Schildau-Mockrehna, Schildau	Eisenbahn AG Schildau-Mockrehna, Merseburg	Merseburg
25	Schleiz-Saalburg (Saale)	15.0	9	Schleizer Kleinbahn AG, Weimar	Schleizer Kleinbahn AG, Weimar	Erfurt (Thüringisches Wirtschaftsministerium)
26	Silberhausen-Hüpstedt	8.5	5	Obereichsfelder Kleinbahn AG, Merseburg	Obereichsfelder Kleinbahn AG, Merseburg	Erfurt
27	Wallwitz-Wettin	9.1	6	Eisenbahn AG Wallwitz-Wettin, Merseburg	Eisenbahn AG Wallwitz-Wettin, Merseburg	Merseburg (?)
28	Wegenstedt-Calvörde	6.1	4	Gemeinde Calvörde	Eisenbahn Wegenstedt-Calvörde, Calvörde	Braunschweig (Staatsministerium)
29	Wolmirstedt-Colbitz	8.5	5	Eisenbahn AG Wolmirstedt-Colbitz, Wolmirstedt	Provinzialverwaltung der Provinz Sachsen, Merseburg	Magdeburg
	Total	477.3	297			

In 1941 there were seven major repair shops in Central Germany (for location see Map No. 3264) which serviced locomotives and cars (see Table 53). Electrical rolling stock used on the electrified lines are repaired at the shop in Dessau.

b. Classification Yards. In Central Germany there are sufficient facilities for the classification of freight traffic, which are operated by the use of humps and are equipped with modern switches and car retarder installations. (See Table 54 for list of classification yards, Map No. 3264.)

3. Administration

a. Central Organization. In the period since World War I, the German railroad system has evolved from a loose federation of state-controlled railroads to a unified national network, coordinated with all other forms of surface transportation.

The Secretary of State to the Minister of Transport is head of the Railroad Departments and Groups with special functions in the Ministry which manage the National Railroad. These offices are concerned only with major problems of policy, which must be handled on uniform principles for the whole system. A sub-department regulates private and light railways. (Chart: Organization of the German National Railroad)

b. Regional Organization

i. Principles. The active administration of the National Railroad is greatly decentralized and much operating power is delegated to regional agencies which are organized on divisional lines. These agencies are not limited in their authority to the fields of operation (transportation, maintenance of way and structures, operation and maintenance of equipment) as on those American railroads which have adopted the divisional system of organization. They are also in charge of other fields of management, such as personnel and

Table 53. MAJOR REPAIR SHOPS

	Location	Controlling Division Management	Staff (1937)	Type of Repair	Capacity (1927)	Remarks
1	Braunschweig	Hamburg	1,414	Express, freight locomotives.	18 pits. App. capacity of repair 1 month is 100.	Very modern.
2	Delitzsch	Dresden	1,207	Rail motor cars, passenger cars, passenger train baggage cars.	63 passenger and 73 freight car stands.	
3	Dessau	Dresden	883	Electric locomotives, rail motor cars.	Unknown.	More or less branch of larger shop at Halle.
4	Gotha	Dresden	1,274	Rail motor cars, passenger and freight cars, narrow-gauge cars.	55 passenger and 68 freight car stands.	
5	Halle (Saale)	Dresden	1,471	Freight and passenger locomotives.	18 pits -- normal number of locomotives repaired 1 month is 80.	
6	Jena	Dresden		Freight cars	46 freight car stands.	
7	Magdeburg Buchau	Hamburg	1,279	Freight cars		
	Magdeburg Salbke	Hamburg		Passenger and freight cars.	348 freight car stands.	Smaller repair done in branch at Halberstadt.

Table 54. CLASSIFICATION YARDS

Division Management	Location	Capacity cars per 24 hours, one direction
Erfurt	Erfurt	2600
	Gera	2000
	Gerstungen	2000
	Neudientendorf	--
	Weissenfels	2400
	Zeitz	2600
Halle	Bitterfeld	2000
	Falkenberg	3500
	Halle	4500
	Leuna	--
	Merseburg	2000
	Rosslau	2250
Hannover	Braunschweig	--
	Granhof Verschiebebahnhof	--
	Halberstadt	2200
	Magdeburg-Buchau	3800
	Magdeburg-Rothensee Vbf.	3000
	Oschersleben	--
Kassel	Nordhausen	2000
	Seesen Vbf.	--

legal matters, accounting, and purchasing of less important materials.

ii. Division Managements. In 1943 there were thirty-one division managements, of which twenty-six were located in Germany proper. The Central Industrial Region is intersected by five division managements: Dresden, Erfurt, Halle, Hannover, and Kassel (see Map No. 3264); two of these, Erfurt and Halle, have their headquarters in this area. No one division is wholly included in the Central Industrial Region.

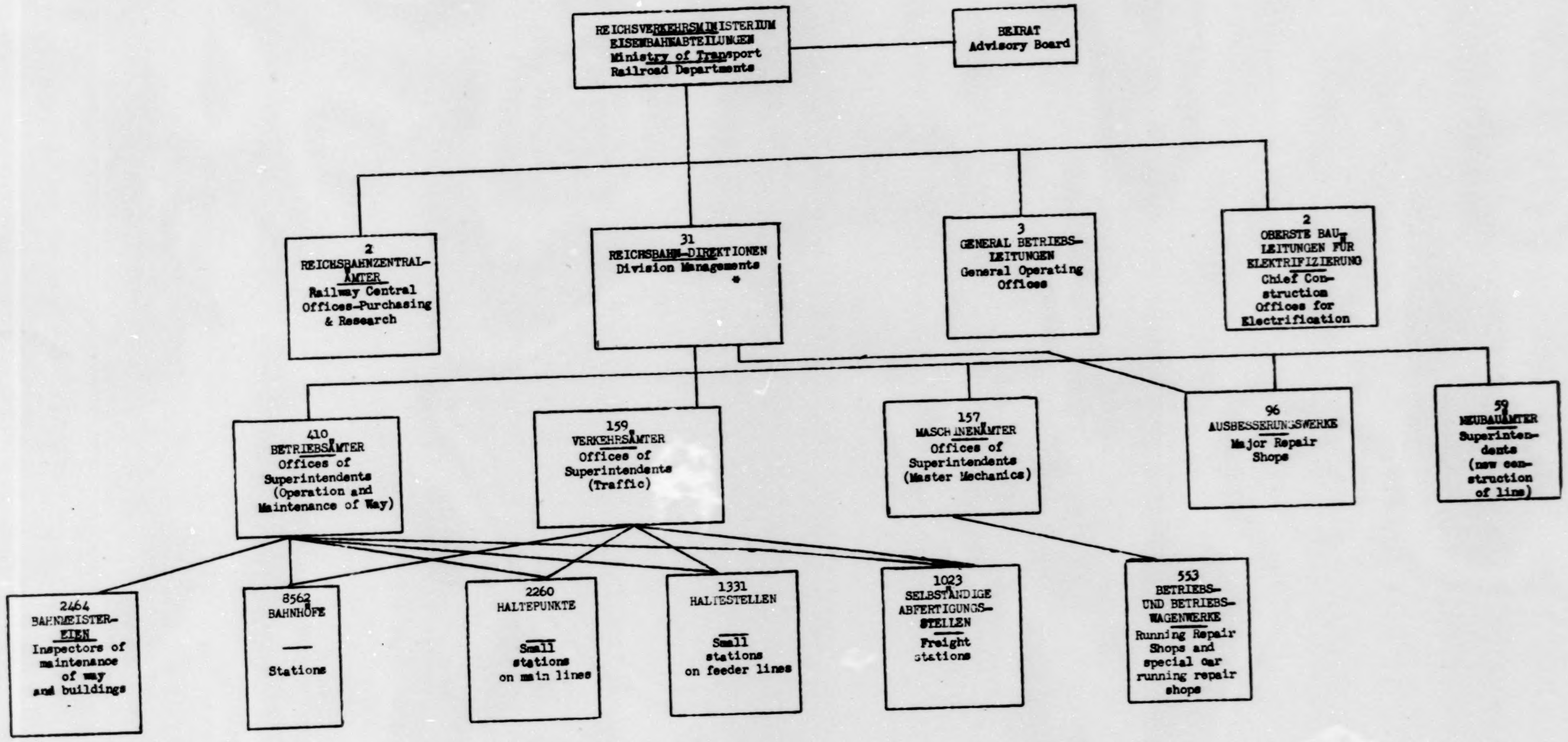
Division managements have broad responsibilities in almost all fields of railroad operation. The presidents of division managements exercise these power with virtually a free hand. The network operated by a division management in Central Germany averages 2,500 km. (1,550 miles). Division managements are divided into sections (Abteilungen), the number and functions of which vary according to the size of the individual network and other local requirements. The following sections function in a medium-sized division management: (1) finance and personnel, (2) traffic and legal matters, (3) operation, including military transportation, (4) new construction and maintenance of way and structures, (5) mechanical engineering.

iii. Major Workshops. The major repair shops in Germany are supervised by ten division managements. This division of function is designed to organize repair services within larger areas. In the Central Industrial Region there are seven major workshops which are supervised by the Dresden and Hamburg division managements (see Map No. 3264).

(1) Superintendents. There are four types of Superintendents' Offices (Aemter) under the division managements. In Central Germany, as in all Germany, the Offices of Operation Superintendents (Betriebsämter) are in charge of transportation and maintenance of way and structures; Offices

CHART

ORGANIZATION OF THE GERMAN NATIONAL RAILROAD


REICHSVERKEHRSMINISTERIUM EISENBAHNABTEILUNGEN
Ministry of Transport Railroad Departments
BEIRAT
Advisory Board
2 REICHSBAHNZENTRALÄMTER
Railway Central Offices-Purchasing & Research
31 REICHSBAHN-DIREKTIONEN
Division Managements *
3 GENERAL BETRIEBSLEITUNGEN
General Operating Offices
2 OBERSTE BAULEITUNGEN FÜR ELEKTRIFIZIERUNG
Chief Construction Offices for Electrification
410 BETRIEBSÄMTER
Offices of Superintendents (Operation and Maintenance of Way)
159 VERKEHRSÄMTER
Offices of Superintendents (Traffic)
157 MASCHINENÄMTER
Offices of Superintendents (Master Mechanics)
96 AUSBESSERUNGSWERKE
Major Repair Shops
59 NEUBAUÄMTER
Superintendents (new construction of lines)
2464 BAHNMEISTEREIEN
Inspectors of maintenance of way and buildings
8562 BAHNHÖFE
Stations
2260 HALTEPUNKTE
Small stations on main lines
1331 HALTESTELLEN
Small stations on feeder lines
1023 SELBSTÄNDIGE ABFERTIGUNGSSTELLEN
Freight stations
553 BETRIEBS- UND BETRIEBSWAGENWERKE
Running Repair Shops and special car running repair shops

* Only 10 Division Managements are in charge of major repair shops.

Also 7 crosstic impregnation plants
117 gas-generating plants
75 hydro-electric and other power plants
1478 transformer, converter and rectifier stations
1891 railway waterworks

of Traffic Superintendents (Verkehrsämter) are in charge of passenger and freight traffic; Offices of Master Mechanics (Maschinenämter) are in charge of operation and maintenance of equipment. There are also Offices of Superintendents for new construction of lines (Neubauämter). (For location of Superintendents' Offices see Map No. 3264.)

(2) Subordinate Agencies. Inspectors of maintenance of way and buildings (Bahnmeister) are supervised by the Superintendents of Operation; passenger stations and combined passenger and freight stations (including all small stations) are controlled by both the Superintendents of Operations and the Traffic Superintendents, while freight stations are under the Traffic Superintendents alone. Running repair shops and special car shops (Betriebs- und Betriebswagenwerke) are controlled by the Master Mechanics; these officials also supervise the roundhouses, which are under the direct jurisdiction of the chiefs of the running repair shops, or of the local station masters in places where no repair shops exist.

(3) Private Railroads and Light Railways. Rail lines not operated by the National Railroad are divided into two categories: those which serve general traffic needs, private railroads (Privatbahnen), and those which serve local requirements only, light railways (Nebenbahnähnliche Kleinbahnen). Private railroads and light railways are managed by corporations formed for specific lines, by branches of large operating companies, or by subsidiaries of holding companies which specialize in this field of rail transport. Both private railroads and light railways are regulated by the Ministry of Transport through the division managements. (For lists of private railroads and light railways see Table 51 and 52.)

4. Traffic. Figures for the volume of present traffic are not available. It is known only that, since the outbreak of war, tons and ton-kilometers of freight have increased considerably, while the number of passengers and passenger-kilometers have remained almost unchanged in spite of the great restrictions in services.

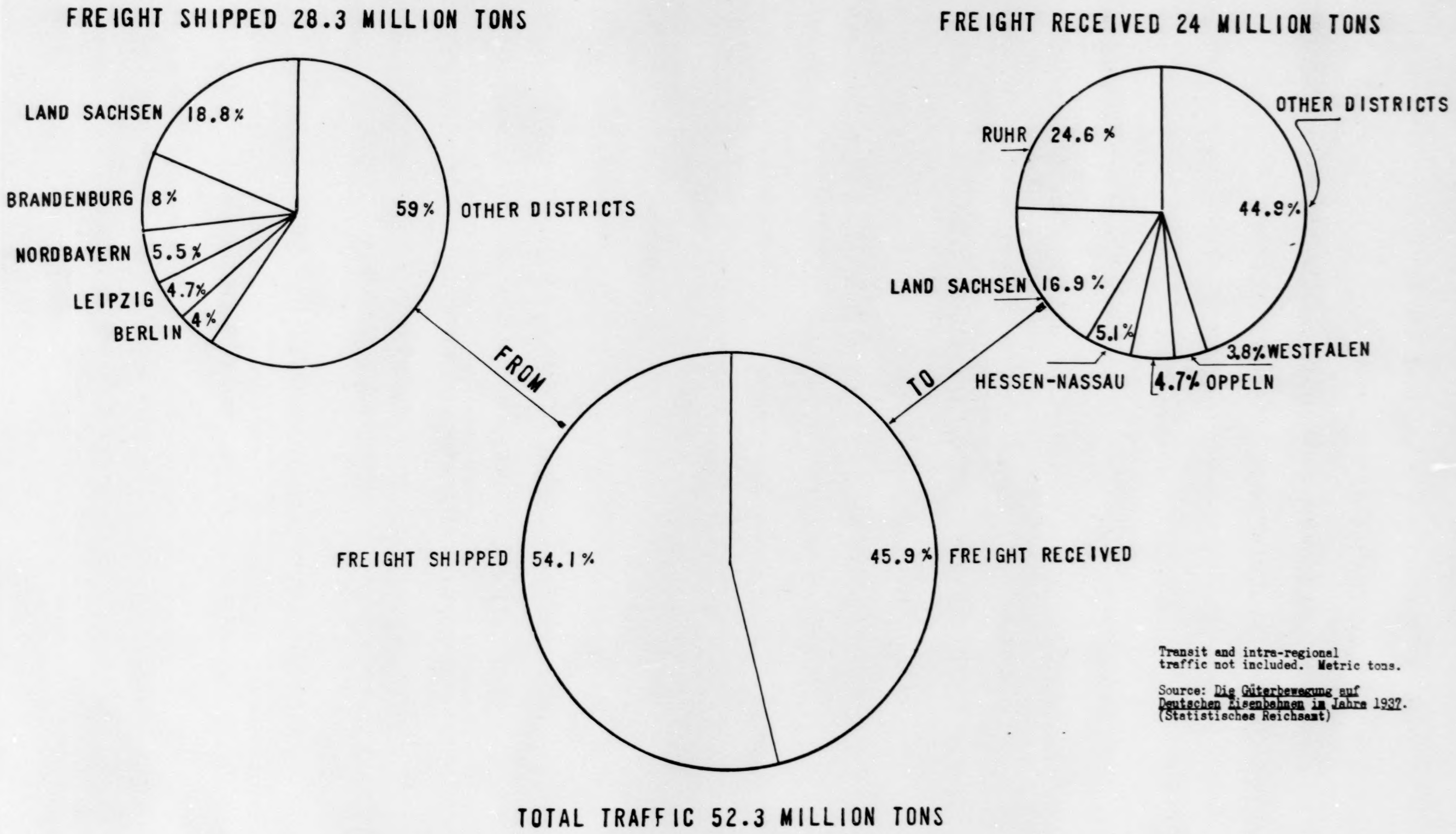
Freight statistics of 1937 -- the latest available -- have been used to present a picture of the total pre-war tonnage carried in the Central Industrial Region, 1/ the distribution of this traffic by commodities and the main districts of origin and destination of shipments between districts (Table 55, and chart "Railroad Traffic of the Central German Industrial Region").

The data show that a large portion of total German rail traffic was carried in the Central Industrial Region. The region exported almost 4,000,000 tons more than it imported. The principal commodities shipped from stations in the region were brown coal briquets and brown coal, potash fertilizers and potash, earth, gravel, and sand. The chief commodities received were bituminous coal and coke, brown coal briquets and brown coal, earth, gravel and sand. The most important district from which freight was imported was the Ruhr, while Saxony received most of the goods from the Central German area. Transit traffic amounts to 15 percent of total freight traffic.

1/ The traffic districts of Thüringen, Merseburg, Magdeburg, and Hannover cover almost the same area as the Central Industrial Region.

RAILROAD TRAFFIC OF THE CENTRAL GERMAN INDUSTRIAL REGION

ORIGIN AND DESTINATION OF TRAFFIC BY DISTRICTS. (1937)



Transit and intra-regional traffic not included. Metric tons.

Source: Die Güterbewegung auf Deutschen Eisenbahnen im Jahre 1937. (Statistisches Reichsamt)

Table 55

RAILROAD FREIGHT TRAFFIC IN THE CENTRAL GERMAN INDUSTRIAL REGION, 1937
(metric tons)

a. HANNOVER DISTRICT

Nineteen Specific Commodities	Tonnage Shipped	Tonnage Received
Brown coal	911,379	28,055
Brown coal briquets	565,628	634,698
Brown coal coke	249,395	108,139
Bituminous coal	97,206	1,644,944
Bituminous coal coke	90,613	379,410
Wheat	19,206	29,089
Rye	32,558	23,061
Sugar beets	160,474	87,056
Raw sugar	16,249	68,049
Potash	2,090	32,050
Potash fertilizers	512,496	202,158
Gasoline	61,126	48,488
Nitrogen	7,466	143,256
Machines	81,106	58,959
Semi-finished iron and steel	346,212	84,586
Iron and manganese ore	739,483	6,093
Cement, mortar	527,102	86,190
Artificial stones, plates, pipes	187,633	185,951
Earth, gravel, sand	758,139	409,955
	5,365,561	4,260,187
All other commodities combined	5,387,682	4,583,146
Total	10,753,243	8,843,333

TOTAL TONNAGE RECEIVED AND SHIPPED	19,596,576
TOTAL TONNAGE OF TRAFFIC INSIDE THE REGION	5,631,207
TOTAL	25,227,783 tons

The five most important districts where these tonnages were:

	Shipped to		Received from	
1.	Magdeburg	2,489,319 tons	Ruhr	1,961,582 tons
2.	Oldenburg	1,609,110	Merseburg	943,327
3.	Merseburg	1,102,317	Hessen-Nassau	906,537
4.	Westfalen	731,651	Magdeburg	809,406
5.	Ruhr	634,198	Oldenburg	841,757

Table 55 (cont'd)

b. MAGDEBURG DISTRICT

Nineteen Specific Commodities	Tonnage Shipped	Tonnage Received
Brown coal	39,108	2,045,134
Brown coal briquets	269,697	1,090,223
Brown coal coke	112,376	460,272
Bituminous coal	4,299	829,613
Bituminous coke	73,163	325,728
Wheat	20,619	3,148
Rye	15,443	7,887
Sugar beets	110,868	200,486
Raw sugar	86,092	34,659
Potash	325,578	16,370
Potash fertilizers	590,200	242,834
Gasoline	104,633	30,011
Nitrogen	15,273	215,093
Machines	75,605	73,244
Semi-finished iron and steel	10,354	156,211
Iron and manganese ore	7,149	1,764
Cement, mortar	325,411	105,539
Artificial stones, plates, pipes	32,706	266,687
Earth, gravel, sand	316,356	344,891
	2,534,930	6,449,794
All other commodities combined	4,254,141	4,085,045
Total	6,789,071	10,534,839

TOTAL TONNAGE RECEIVED AND SHIPPED 17,323,900

TOTAL TRAFFIC INSIDE THE AREA 6,280,399

TOTAL 23,604,299 tons

The five most important districts where these commodities were:

	Shipped to		Received from	
1.	Merseburg	1,399,329 tons	Merseburg	3,578,681 tons
2.	Hannover	809,406	Hannover	2,489,319
3.	Brandenburg	715,245	Land Sachsen	894,765
4.	Land Sachsen	483,278	Ruhr	790,581
5.	Berlin	396,671	Oppeln	428,073

Table 55 (cont'd)

c. MERSEBURG DISTRICT

Nineteen Specific Commodities	Tonnage Shipped	Tonnage Received
Brown coal	2,508,905	88,144
Brown coal briquets	6,592,049	272,614
Brown coal coke	505,994	21,570
Bituminous coal	3,041	1,102,161
Bituminous coke	6,153	1,563,791
Wheat	47,727	5,669
Rye	19,607	19,755
Sugar beets	131,319	312,042
Raw sugar	79,999	51,832
Potash	120,242	71,752
Potash fertilizers	1,028,071	45,500
Gasoline	347,632	65,978
Nitrogen	1,341,071	34,685
Machines	50,049	86,197
Semi-finished iron and steel	12,420	171,866
Iron and manganese ore	1,978	43,791
Cement, mortar	177,797	335,495
Artificial stones, plates, pipes	432,691	251,886
Earth, gravel, sand	1,203,873	378,439
	14,610,802	4,923,167
All other commodities combined	4,303,051	5,792,742
Total	18,913,853	10,715,909

TOTAL TONNAGE RECEIVED AND SHIPPED 29,629,762

TOTAL TONNAGE OF TRAFFIC INSIDE THE REGION 8,888,607

TOTAL 38,518,369 tons

The five most important districts where these commodities were:

	Shipped to		Received from	
1.	Magdeburg	3,578,681 tons	Ruhr	2,118,721 tons
2.	Land Sachsen	3,072,011	Magdeburg	1,399,329
3.	Thüringen	2,963,519	Land Sachsen	1,328,904
4.	Brandenburg	1,164,623	Hannover	1,102,317
5.	Leipzig	972,891	Thüringen	1,001,617

Table 55 (cont'd)

d. THURINGEN DISTRICT

Nineteen Specific Commodities	Tonnage Shipped	Tonnage Received
Brown coal	266,898	557,039
Brown coal briquets	1,345,911	1,827,694
Brown coal coke	30,763	112,105
Bituminous coal	878	955,357
Bituminous coke	5,999	509,521
Wheat	33,044	8,001
Rye	2,987	20,606
Sugar beets	160,947	5,473
Raw sugar	-	57,675
Potash	34,868	36,544
Potash fertilizers	337,059	38,405
Gasoline	7,419	45,721
Nitrogen	279	47,343
Machines	35,309	34,266
Semi-finished iron and steel	126,428	119,596
Iron and manganese ore	61,369	99,036
Cement, mortar	135,479	246,650
Artificial stones, plates, pipes	67,776	143,285
Earth, gravel, sand	299,084	1,042,601
	3,452,497	5,906,918
All other commodities combined	3,088,402	2,724,789
Total	6,540,899	8,631,707

TOTAL TONNAGE RECEIVED AND SHIPPED	15,172,606
TOTAL TRAFFIC INSIDE THE REGION	3,690,329
TOTAL	18,862,935 tons

The five most important districts where these commodities were:

	Shipped to		Received from	
1.	Land Sachsen	1,768,610 tons	Merseburg	2,963,519 tons
2.	Merseburg	1,001,617	Land Sachsen	1,830,430
3.	Nordbayern	679,041	Ruhr	1,036,915
4.	Leipzig	365,240	Nordbayern	576,187
5.	Hessen-Nassau	321,200	Hessen-Nassau	331,301

Table 55 (cont'd) e. ENTIRE REGION

Nineteen Specific Commodities	Shipped	Received
Brown coal	3,726,290	2,738,372
Brown coal briquets	8,773,285	3,825,229
Brown coal coke	898,528	702,086
Bituminous coal	105,424	4,532,075
Bituminous coal coke	175,928	2,778,450
Wheat	120,596	45,907
Rye	70,595	71,309
Sugar beets	563,608	605,057
Raw sugar	182,340	212,215
Potash	482,778	156,716
Potash fertilizers	2,967,826	528,897
Gasoline	520,810	190,198
Nitrogen	1,364,089	440,377
Machines	242,069	252,666
Semi-finished iron and steel	495,414	532,259
Iron and manganese ore	809,979	150,684
Cement, mortar	1,165,789	773,874
Artificial stones, plates, pipes	720,806	847,809
Earth, gravel, sand	2,577,452	2,175,886
	25,963,790	21,540,066

The five most important districts where all commodities from the region are shipped to are:

1.	Land Sachsen	5,323,899
2.	Brandenburg	2,253,556
3.	Nordbayern	1,537,778
4.	Leipzig	1,338,131
5.	Berlin	1,149,712

The five most important districts where all commodities are received from are:

1.	Ruhr	5,907,799
2.	Land Sachsen	4,054,099
3.	Hessen-Nassau	1,237,838
4.	Oppeln	1,132,002
5.	Westfalen	925,970

Shipped		
The nineteen specific commodities	25,963,790	
All other commodities combined	17,033,276	
	42,997,066	
Abroad	332,000	
	43,329,066	
Shipped inside the region	15,006,852	
Shipped out of the region		28,322,214
Received		
The nineteen specific commodities	21,540,066	
All other commodities combined	17,185,722	
	38,725,788	
From abroad	320,000	
	39,045,788	
From inside the region	15,006,852	
Total Received from Outside of the Region		24,038,936
Total Traffic Inside the Traffic Districts		
Hannover	5,631,207	
Merseburg	8,888,607	
Magdeburg	6,280,399	
Thüringen	3,690,329	
Total		24,490,542
Traffic Between the Districts		15,006,852
Transit Traffic		12,000,000
TOTAL OF RAIL TRANSPORTATION OF ENTIRE REGION		103,858,544 1/

1/ This total contains some duplications of shipments and receipts.

C. Roads and Motor Transport[1]

1. Roads.

a. Road Net. The main roads of the Central Industrial Region carry heavy local traffic, as well as incoming and outgoing traffic essential to the economic life of the region. In addition they normally carry heavy through traffic, since the region is an important transit area for through traffic on the ample net of ordinary highways as well as the super-highways constructed during the past ten years. The highway network is shown on Map No. A3186. In terms of actual length of road, however, main highways are secondary to the rural roads. The latter are constructed chiefly of simple water-bound macadam, and provide the link between agricultural areas and railroad stations and markets. The road density of the region is practically identical with the average for the whole Reich. The lowest density occurs in Thüringen, as the following table indicates:

	Kilometers of Road per Square Kilometer of Land (Exclusive of communal roads)
Braunschweig	0.78
Anhalt	0.53
Sachsen	0.47
Thüringen	0.39
Central Industrial Region	0.48
Germany	0.47

b. Administration

i. Classification. Roads in the Central Industrial Region are divided into four classes: (1) superhighways (Reichsautobahnen), which are four-lane roads of the most modern design; (2) national roads (Reichsstrassen), which are two-lane highways, usually well maintained; (3) first-class state roads (Landstrassen 1. Ordnung), whose maintenance has been neglected since 1933 in favor of national roads and super-highways; (4) second-class state roads (Landstrassen 2. Ordnung), usually in poor condition, and found mainly in rural areas. In addition there are communal roads (Gemeindestrassen), the local roads and streets administered by village and municipal authorities. The classification of a road is a fairly accurate key to its actual importance.

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[1] See also Appendix to the Civil Affairs Guide on the Administration of German Roads and Motor Transport, R&A 1759.2.

ii. Road Authorities. Super-highways are constructed and managed by the Reichsautobahnen corporation, whose activities have been largely suspended since the war. This corporation has main construction offices (Oberste Bauleitungen) at Halle, Hannover, and Kassel, which control super-highways in the Central Industrial Region (Map No. 3167).

In 1939 the main construction office at Halle had sub-offices (Bauabteilungen) in seven cities: Halle, Gera, Jena, Erfurt, Dessau, Bernburg, and Sangerhausen. The jurisdiction of the Halle office extended along the super-highway towards Berlin to a point seventy-two kilometers east of Schkeuditz. The main construction office at Hannover exercised control over part of the Central Industrial Region through sub-offices at Braunschweig and Magdeburg-Neustadt. The main construction office at Kassel maintained a sub-office at Eisenach.

National and first-class state roads are maintained by provincial and state authorities under the supervision of the Inspector General for German Roads. For national roads, funds are provided by the Reich Government. First-class state roads are financed by the provincial or state governments. Second-class state roads are maintained and financed by local districts, counties, and towns. Reich subsidies to states and subordinate authorities, however, ceased in August 1942.

In Thüringen, Department C of the Ministry of the Interior is in charge of road construction, road laws, and highway police. District offices (Kreisämter) at Eisenach, Gera, Gotha, Meiningen, Saalfeld, Schleiz, Stadtroda, and Weimar carry out the actual work.

In Braunschweig, Department 1A (Wegeordnung) of the Ministry of the Interior deals with road matters. Local construction offices are located at Braunschweig, Wolfenbüttel, Helmstedt, Gandersheim, and Blankenburg.

Anhalt has a highway office in the State Government. All classes of roads in Anhalt are maintained by the districts of Ballenstedt, Bernburg, Dessau-Köthen, and Zerbst.

In the Prussian provinces of Sachsen and Hannover, highway control is under the Regierungs-Bezirke, which have subsidiary construction offices (Landesbauämter). Those of Sachsen are at Eisleben, Erfurt, Halberstadt, Halle, Magdeburg, Mühlhausen, Stendal, Weissenfels, and Wittenberg. Those of Hannover, within the Central Industrial Region, are at Goslar, Hildesheim, Nienburg, and Northeim.

iii. Braunschweig Experimental Road Station. The Braunschweig experimental road station, located north of the city of Braunschweig, is an important influence on road administration in the whole German Reich. It is the only installation of its kind in Germany, begun in 1925 mainly on the initiative of local road engineers. Experiments financed by the Reich Ministry of Transport seek to determine the influence of vehicles and tires on different types of road surfaces. In 1934 research at Braunschweig was utilized in drawing up the new Nazi vehicle code.

c. Standards of Construction. Super-highways are of four-lane, concrete construction. Virtually all grade crossings have been eliminated on such highways, and opposing lines of traffic are separated by a strip of grass. The following routes crossing the Central Industrial Region adhere to these standards:

(1) Halle -- Leipzig. Twenty-one bridges eliminate grade crossings.

(2) Chemnitz -- Meerane -- Ronneburg -- Gera -- Jena -- Eisenach. Crosses the northern Frankenwald and the Thuringian Forest by means of numerous high, long bridges. The bridge spanning the Teufelstal near Hermsdorf is the largest ferro-concrete bridge in Germany, 235 m. long and fifty-six m. high.

(3) Berlin -- Dessau -- Schkeuditz -- Schleitz -- Nürnberg.

(4) Berlin -- Magdeburg -- Braunschweig -- Hannover.

(5) Halle -- Magdeburg. Under construction in March, 1939, but since that time may have been abandoned.

(6) Hannover -- Göttingen -- Kassel.

On both the Berlin -- Hannover route (at Olvenstedt near Magdeburg) and the Chemnitz -- Eisenach route (at Hermsdorf in Thüringen) a rest house for truckers has been constructed, together with a control station for RKB trucks (see below, Trucking); a repair shop, filling station, parking lot, and garage for snow-removal equipment.

In general the national and state roads of the Central Industrial Region are adequate for normal peacetime traffic. The widths of these classes of road are given in Table 56, while Table 57 gives their surfaces. More kilometers of road in the region are of water-bound macadam than of any other surface. However, most such roads are rural and relatively little travelled; virtually all main highways have a permanent type of surface. The roads are characterized by numerous junctions, crossings, and sharp curves, all of which hamper speedy travel. This is particularly true in the southern part of the region.

d. Road Traffic. Peacetime traffic in the Central Industrial Region was somewhat heavier than that of the Reich as a whole, since long-distance traffic passed through the

Table 56. WIDTH OF ROADS IN THE CENTRAL INDUSTRIAL REGION

Territory	Total length in km. 1/	perce[illegible]			
		Less than 4.5 m.	4.5 [illegible] less [illegible] m.	than 6.5 m.	6.5 m. and over
Provinz Sachsen					
National roads	2,347.3	7.18	45.36	35.44	12.02
First-class state roads	5,179.2	40.30	47.63	9.23	2.84
Second-class state roads	4,405.3	61.84	31.67	4.76	1.73
Thüringen					
National roads	1,322.9	2.71	37.17	50.66	9.46
First-class state roads	1,958.4	23.80	42.65	31.01	2.54
Second-class state roads	1,286.7	51.95	42.04	5.00	1.01
Braunschweig					
National roads	542.9	4.51	21.23	68.66	5.60
First-class state roads	1,089.8	48.56	38.38	11.61	1.45
Second-class state roads	1,228.8	79.19	18.21	2.39	0.21
Anhalt					
National roads	194.7	14.37	29.12	35.87	20.64
First-class state roads	537.4	51.72	33.63	8.49	6.16
Second-class state roads	491.5	45.87	45.91	4.50	3.72
German Reich					
National roads	41,321.2	11.47	25.62	49.19	13.72
First-class state roads	84,256.8	42.26	39.63	13.72	4.40
Second-class state roads	87,155.0	64.85	28.14	5.29	1.73

1/ In 1936.

Table 57. SURFACES OF NATIONAL AND STATE ROADS, 31 MARCH 1938[1]

Type of Surface	Kilometers					Percentage					Kilometers	Percentage
	Sachsen (Prov.)	Thüringen	Braunschweig	Anhalt	Central Industrial Region	Sachsen (Prov.)	Thüringen	Braunschweig	Anhalt	Central Industrial Region	Total Reich	Total Reich
Waterbound Macadam	3,326	1,612	1,645	227	6,810	28.3	37.5	59.6	20.3	34.2	97,951	48.3
Surface-treated macadam	1,835	1,418	442	75	3,770	15.6	33.0	16.0	6.7	18.9	51,861	25.6
Tar or asphalt penetration macadam	1,930	1,087	194	144	3,355	16.4	25.3	7.0	12.9	16.8	20,228	10.0
Tar or asphalt concrete under 6 cm. thick	42	2	3	17	64	0.4	--	0.1	1.5	0.5	3,022	1.5
Mortar macadam	27	--	14	3	44	0.2	--	0.5	0.3	0.2	440	0.2
Stone setts	4,193	178	459	670	5,415	42.4	4.1	20.6	52.4	27.1	27,635	13.6
Tar or asphalt concrete over 6 cm. thick	102	2	2	--	106	0.9	--	0.1	--	0.5	797	0.4
Artificial stone setts	197	--	--	1	198	1.7	--	--	0.1	1.0	375	0.1
Cement concrete	95	2	--	65	162	0.8	--	--	5.8	0.8	607	0.3
TOTAL	11,747	4,301	2,759	1,117	19,924	100.0	100.0	100.0	100.0	100.0	202,916	100.0

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[1] Excluding city streets.

From OSS report, R&A No. 1757

region to and from other parts of the Reich. Traffic of local origin was actually somewhat below the national average.

Long-distance traffic originating in Braunschweig was fairly heavy to Berlin, Hamburg, and the Ruhr region. Heavy traffic, particularly of trucks, ran between Braunschweig and Hannover and between Braunschweig and the Harz region. In addition, through traffic from the Ruhr to Berlin was heavy in the Braunschweig area.

From the Halle area, heaviest traffic was towards the Ruhr, Hannover, Magdeburg, and Berlin. Local and suburban travel around Halle was heavy to the north and south, but heaviest towards the west of the city.

The greater part of the traffic in the Magdeburg area was through traffic, running particularly from Sachsen towards the Ruhr and Hamburg. Suburban travel around Magdeburg was heaviest to the east and south.

In the southern part of the Central Industrial Region heaviest travel, apart from the Reichsautobahnen, was on the road from Gotha to Weimar via Erfurt. Travel from Weimar to Jena was not so heavy, while fairly heavy traffic ran north and south through Erfurt.

The observations above are made on the basis of the latest German traffic count, 1936-37, which also contains detailed information forming the basis of Tables 58 and 59. While the count gives a good picture of comparative road usage, it was designed for highway engineering purposes and has important limitations of method which should be understood before its data are used. The main limitations of the count are:

(1) Urban traffic was registered only indirectly. Traffic registration points were established only on national and state roads, and figures were averaged over

areas that usually extended beyond city limits.

(2) Figures on tonnage are approximate and gross, and do not indicate the actual load carried. For purposes of the count the following conventional weights were adopted:

	Metric tons
Motorcycle	0.3
Light automobile	1.2
Heavy automobile	2.5
Delivery truck	2.0
Bus	6.0
Heavy truck or truck-trailer combination	6.5

The number of vehicles reported in the count represented the average number passing registration points during a 24-hour period. Averages developed from local data were weighted according to the road mileage of a reporting area (which generally included several registration points). These areas are not comparable to present highway administration units.

The results of the traffic count are given here in two forms. Table 58 gives a brief summary of the results in terms of road lengths according to various ranges of total daily tonnage. Table 59 gives a more complete breakdown by locality, by type of vehicle, and by class of road. Statistics are given for national roads, for first-class state roads, and for the two combined.

For those super-highways open to traffic at the time of the 1936-37 traffic count, statistics on average traffic (number of vehicles) are given in Table 60. As these statistics show, the Berlin -- Magdeburg -- Braunschweig -- Hannover super-highway is one of the most important trucking routes in the Reich.

TABLE 58. TRAFFIC ON NATIONAL AND FIRST CLASS STATE ROADS, 1936/1937

Territory	Length of Roads km.	1-200 t km.	201-400 t km.	401-800 t km.	801-2000 t km.	2001-5000 t km	5001-10,000 t km.	10,000-35,000 t km.
Sachsen (Prov.)	7,002	500	1,81[illegible]	2,225	1,742	620	100	1
Thüringen	3,061	254	548	1,024	889	323	23	-
Braunschweig	1,541	186	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Anhalt	668	24	142	241	149	99	13	-
Central Industrial Region	12,271	964	3,011	3,938	3,103	1,119	136	1

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Table 59. DAILY TRAFFIC DENSITY ON ROADS OF CENTRAL INDUSTRIAL REGION

By Local Road Unit (A) National Roads
(B) First-Class State Roads
(C) Total and averages for both

Derived from 1936-37 traffic count

Area		Total Length of Roads, km.	Average Traffic Density						Total traffic density, gross metric tons
			Horse-drawn Vehicles		Passenger Cars and Motorcycles		Trucks and Busses		
			Number	Gross metric tons, incl. horses etc.	Number of motor-cycles	Number of passenger cars	Number	Gross metric tons	
GERMAN REICH	(A)	37,527	41	85	458	1/	182	1,013	1,645
	(B)	80,028	42	84	156	1/	57	300	554
	(C)	117,555	42	85	252	1/	97	527	902
CENTRAL INDUSTRIAL REGION	(A)	4,850	41	94	104	389	201	1,120	1,810
	(B)	9,681	43	99	45	101	55	283	540
	(C)	14,531	43	97	65	197	104	564	984
SACHSEN	(A)	2,120	41	94	101	422	223	1,240	1,973
	(B)	4,883	45	102	47	97	56	280	534
	(C)	7,003	44	99	66	193	106	571	969

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1/ Not given separately.

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Table 59. DAILY TRAFFIC DENSITY ON ROADS OF CENTRAL INDUSTRIAL REGION
(cont'd - 2)

Area		Total Length of Roads, km.	Average Traffic Density						Total traffic density, gross metric tons
			Horse-drawn Vehicles		Passenger Cars and Motorcycles		Trucks and Busses		
			Number	Gross metric tons, incl. horses etc.	Number of motorcycles	Number of passenger cars	Number	Gross metric tons	
Landesbauämter									
Eisleben	(A)	242	44	101	97	320	165	899	1,467
	(B)	667	42	99	39	80	52	266	485
	(C)	908	43	100	54	144	82	434	746
Erfurt	(A)	151	54	108	158	539	235	1,298	2,248
	(B)	267	50	103	56	116	61	323	621
	(C)	418	51	105	93	269	124	675	1,209
Halberstadt	(A)	246	39	96	80	295	143	772	1,310
	(B)	498	44	104	52	127	68	338	641
	(C)	745	42	101	61	183	93	482	862

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Table 59. DAILY TRAFFIC DENSITY ON ROADS OF CENTRAL INDUSTRIAL REGION
(cont'd - 3)

Area		Total Length of Roads, km.	Average Traffic Density						Total traffic density, gross metric
			Horse-drawn Vehicles		Passenger Cars and Motorcycles		Trucks and Busses		
			Number	Gross metric tons, incl. horses etc.	Number of motorcycles	Number of passenger cars	Number	Gross metric tons	
Halle	(A)	198	37	91	160	691	423	2,380	3,558
	(B)	460	43	98	51	111	73	360	637
	(C)	658	41	96	84	286	178	968	1,516
Magdeburg	(A)	247	41	96	140	645	420	2,321	3,411
	(B)	779	47	109	49	112	70	352	630
	(C)	1,026	46	106	71	240	154	826	1,300
Mühlhausen	(A)	212	40	81	88	280	139	750	1,236
	(B)	487	41	82	43	88	40	195	413
	(C)	699	41	82	57	146	70	363	662
Stendal	(A)	275	38	86	71	240	126	694	1,128
	(B)	761	43	102	30	77	32	153	366
	(C)	1,036	42	98	41	120	57	266	568

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Table 59. DAILY TRAFFIC DENSITY ON ROADS OF CENTRAL INDUSTRIAL REGION
(cont'd - 4)

Area		Total Length of Roads km.	Average Traffic Density						Total Traffic Density, gross metric tons
			Horse-drawn Vehicles		Passenger Cars and Motorcycles		Trucks and Busses		
			Number	Gross metric tons, incl. horses, etc.	Number of motor-cycles	Number of passenger cars	Number	Gross metric tons	
Weissenfels	(A)	188	43	123	159	520	258	1,520	2,523
	(B)	431	42	93	62	114	80	403	674
	(C)	619	43	102	91	248	134	743	1,237
Wittenberg	(A)	361	39	81	108	327	170	959	1,586
	(B)	533	54	117	41	85	41	205	456
	(C)	894	48	102	68	183	93	510	913
HANNOVER (Not completely included in Central Industrial Region)									
Landesbauämter									
Goslar	(A)	206	41	100	85	303	129	732	1,307
	(B)	225	49	114	31	82	38	197	442
	(C)	431	45	107	57	187	82	453	855

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Table 59. DAILY TRAFFIC-DENSITY ON ROADS OF CENTRAL INDUSTRIAL REGION (cont'd - 5)

Area		Total Length of Roads, km.	Average Traffic Density						Total traffic density, gross metric tons
			Horse-drawn Vehicles		Passenger Cars and Motorcycles		Trucks and Busses		
			Number	Gross metric tons, incl. horses, etc.	Number of motor-cycles	Number of passenger cars	Number	Gross metric tons	
Hildesheim	(A)	167	60	150	88	444	205	1,129	1,955
	(B)	392	57	140	39	113	60	299	611
	(C)	559	58	143	54	212	103	547	1,013
Nienburg	(A)	358	60	148	80	303	239	1,327	1,988
	(B)	504	56	119	36	82	42	215	464
	(C)	862	58	131	54	174	124	677	1,097
Northeim	(A)	218	53	123	87	330	156	896	1,504
	(B)	405	53	124	40	100	51	270	546
	(C)	623	53	124	56	181	88	489	881
THÜRINGEN	(A)	1,182	30	60	131	407	175	982	1,677
	(B)	1,881	32	66	55	129	61	328	597
	(C)	3,063	32	64	84	237	104	580	1,014

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Table 59. DAILY TRAFFIC DENSITY ON ROADS OF CENTRAL INDUSTRIAL REGION
(Cont'd - 6)

Area		Total Length of Roads, km.	Average Traffic Density						Total Traffic Density, gross metric tons
			Horse-drawn Vehicles		Passenger Cars and Motorcycles		Trucks and Busses		
			Number	Gross metric tons, incl. horses, etc.	Number of motor-cycles	Number of passenger cars	Number	Gross metric tons	
Kreisämter									
Eisenach	(A)	247	28	55	100	314	135	765	1,291
	(B)	256	38	80	40	86	43	224	429
	(C)	503	33	68	69	198	88	489	852
Gera	(A)	140	32	65	181	555	292	1,577	2,618
	(B)	198	28	54	69	148	74	402	718
	(C)	338	30	60	115	317	164	888	1,505
Gotha	(A)	178	30	63	134	460	185	1,028	1,814
	(B)	395	32	63	59	148	64	338	631
	(C)	573	31	63	82	245	102	553	999
Meiningen	(A)	130	35	66	90	274	97	547	1,013
	(B)	212	35	72	44	103	46	250	478
	(C)	342	35	70	60	169	65	363	681

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Table 59. DAILY TRAFFIC DENSITY ON ROADS OF CENTRAL INDUSTRIAL REGION
(cont'd - 7)

Area		Total Length of Roads, km.	Average Traffic Density						Total Traffic Density, gross metric tons
			Horse-drawn Vehicles		Passenger Cars and Motorcycles		Trucks and Busses		
			Number	Gross metric tons, incl. horses, etc.	Number of motor-cycles	Number of passenger cars	Number	Gross metric tons	
Saalfeld	(A)	178	29	56	146	365	162	930	1,522
	(B)	287	26	55	52	131	66	373	627
	(C)	465	27	55	88	221	103	586	969
Schleiz	(A)	128	28	57	75	189	70	385	754
	(B)	200	30	62	62	139	54	294	581
	(C)	328	29	60	67	159	60	329	648
Stadtroda	(A)	93	32	62	176	518	218	1,260	2,104
	(B)	175	34	69	57	129	67	368	659
	(C)	268	34	67	98	264	119	677	1,160
Weimar	(A)	88	30	59	203	801	322	1,877	3,167
	(B)	158	39	77	72	138	74	397	690
	(C)	246	36	70	119	375	162	927	1,577

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Table 59. DAILY TRAFFIC DENSITY ON ROADS OF CENTRAL INDUSTRIAL REGION (cont'd - 8)

Area		Total Length of Roads, km.	Average Traffic Density						Total Traffic Density, gross metric tons
			Horse-drawn Vehicles		Passenger Cars and Motorcycles		Trucks and Busses		
			Number	Gross metric tons, incl. horses, etc.	Number of motor-cycles	Number of passenger cars	Number	Gross metric tons	
BRAUNSCHWEIG (Not completely included in Central Industrial Region)									
Bauämter									
Braunschweig	(A)	67	58	127	178	529	286	1,496	2,431
	(B)	174	53	115	46	84	54	265	517
	(C)	241	54	118	83	207	119	607	1,049
Wolfenbüttel	(A)	71	44	109	98	396	192	1,088	1,766
	(B)	267	45	112	27	69	34	162	378
	(C)	338	45	111	42	138	67	357	670
Helmstedt	(A)	86	50	111	57	172	92	484	856
	(B)	205	47	107	32	69	41	207	421
	(C)	291	48	108	40	99	56	289	550

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Table 59. DAILY TRAFFIC DENSITY ON ROADS OF CENTRAL INDUSTRIAL REGION
(cont'd - 9)

Area		Total Length of Roads, km.	Average Traffic Density						Total Traffic Density, gross metric tons
			Horse-drawn Vehicles		Passenger Cars and Motorcycles		Trucks and Busses		
			Number	Gross metric tons, incl. horses, etc.	Number of motor-cycles	Number of passenger cars	Number	Gross metric tons	
Gandersheim	(A)	106	45	101	60	236	130	742	1,198
	(B)	129	45	98	23	70	31	150	359
	(C)	235	45	99	40	144	76	417	737
Blankenburg	(A)	108	24	56	59	243	70	365	789
	(B)	109	17	40	26	85	31	162	340
	(C)	217	21	48	43	163	50	263	563
ANHALT	(A)	161	39	91	125	403	316	1,813	2,515
	(B)	507	42	96	55	112	77	406	680
	(C)	668	41	94	72	182	135	745	1,122
Kreise									
Ballenstedt	(A)	33	23	51	67	231	109	606	1,001
	(B)	83	30	68	63	170	78	412	765
	(C)	116	28	63	64	187	87	467	832

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Table 59. DAILY TRAFFIC DENSITY ON ROADS OF CENTRAL INDUSTRIAL REGION
(cont'd - 10)

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Area		Total Length of Roads, km.	Average Traffic Density						Total Traffic Density, gross metric tons
			Horse-drawn vehicles		Passenger Cars and Motorcycles		Trucks and Busses		
			Number	Gross metric tons, incl. horses etc.	Number of motor-cycles	Number of passenger cars	Number	Gross metric tons	
Bernburg	(A)	41	44	102	108	374	193	1,068	1,733
	(B)	94	44	102	53	107	76	400	662
	(C)	135	44	102	70	188	111	603	987
Dessau-Köthen	(A)	55	51	120	179	503	468	2,663	3,567
	(B)	194	55	127	70	124	105	552	880
	(C)	249	54	126	95	207	185	1,018	1,474
Zerbst	(A)	32	28	66	115	447	426	2,552	3,270
	(B)	136	28	64	30	63	38	196	354
	(C)	168	22	64	50	132	112	645	909

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Table 60. DAILY TRAFFIC DENSITY ON SUPER-HIGHWAYS OF THE CENTRAL INDUSTRIAL REGION
Derived from 1936-37 Traffic Count

Name and Section	Length in km.	Average Traffic Density							Total Truck and Bus	Total Metric Tons
		Motor-cycles	Passenger cars	Truck-tractors	Delivery trucks	Busses	Heavy trucks	Trailers		
HALLE-LEIPZIG	38.4	150	831	11	43	16	169	160	399	3,557
BERLIN-MÜNCHEN (Schkeuditz-Eisenberg)	59.0	115	705	5	27	13	169	156	370	3,248
BERLIN-HANNOVER (Burg-Braunschweig West)	101.9	110	682	27	39	13	322	348	749	5,529
AVERAGES FOR GERMAN REICH	1,509.6	160	820	8	36	21	157	132	356	3,292

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2. Motor Transport. The latest published statistics on the number and types of motor vehicles in the Central Industrial Region are for 1938 (Table 61).

The available information on civilian motor transport refers to pre-war conditions. However, this information may serve to indicate the normal capabilities of motor transport.

a. Administration. The Reich Ministry of Transport determines national motor transport policy, and controls the motor transport industry through the Motor Transportation Group.

Wartime control of motor transport is largely in the hands of the Commissioners for Short-distance Traffic (Bevollmächtigte für den Nahverkehr). The Commissioners concerned with the Central Industrial Region are located at Hannover and Weimar.

Long-distance commercial trucking is administered by the National Trucking Association (Reichskraftwagenbetriebsverband, abbr. RKB), which commercial truckers operating beyond a radius of fifty kilometers are compelled to join (see below, Trucking).

The official organization for private motorists is the Deutsche Automobil Club. Its main offices for the Central Industrial Region are at Erfurt, Hannover, and Halle.

b. Services.

i. Busses. Extra-urban bus traffic has been cut to a minimum since 1939. Before the war the Reichspost (National Post Department) was the most important operator of extra-urban bus lines (see Table 62), while the Reichsbahn controlled all bus lines running on the super-highways. Using the super-highways in in the Central Industrial Region modern busses ran from Berlin to Braunschweig via Potsdam and Magdeburg, and from

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Table 61. MOTOR VEHICLES IN THE CENTRAL INDUSTRIAL REGION, 1 JULY 1938

Main Cities, Districts and Provinces	Motor-cycles	Passenger Cars	Busses	Trucks					Total (excluding motorcycles)
				Total	By Load Capacity (metric tons)				
					0-0-2	2-3	3-4	4 and over	
PROVINZ SACHSEN	92,760	71,785	891	17,953	12,235	3,076	1,466	1,156	90,609
Regierungs-Bezirk Magdeburg	34,762	29,240	366	7,190	5,359	1,059	453	319	36,796
City of Magdeburg	4,547	8,442	43	2,447					10,932
Merseburg	42,478	28,773	195	7,186	4,623	1,255	676	632	36,154
City of Halle	3,000	5,531	30	1,932					7,493
Erfurt	15,520	13,772	330	3,577	2,253	762	337	205	17,659
City of Erfurt	2,864	4,898	36	1,273					6,207
PROVINZ HANNOVER									
Regierungs-Bezirk Hildesheim	14,199	12,327	158	2,812	1,766	536	284	226	15,297
THÜRINGEN	45,429	31,334	410	7,749	4,398	1,958	949	444	39,493
BRAUNSCHWEIG	15,695	12,091	258	3,274	2,258	555	277	184	15,623
City of Braunschweig	4,114	5,303	112	1,638					7,053
ANHALT	10,744	7,516	107	2,005	1,322	409	159	115	9,628
City of Dessau	2,345	2,532	46	857					3,435
CENTRAL INDUSTRIAL REGION total	178,827	135,053	1,824	33,793	21,979	6,534	3,135	2,125	170,650
GERMANY, total	1,513,328	1,271,983	18,451	365,731	240,398	71,900	31,295	22,138	1,656,165

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Table 62. SCHEDULED EXTRA-URBAN BUS LINES IN THE CENTRAL INDUSTRIAL REGION, 1938

	Number	Length in km.	Number of Bussos	Passengers, in 1,000
Other than Reichspost				
Sachsen	110	2,120	145	3,424
Thüringen	59	933	83	2,261
Braunschweig	33	493	56	530
Anhalt	22	333	28	715
Reichspost lines				
Sachsen, Thüringen and Anhalt	169	3,215	183	6,078
(Braunschweig not available)				

Berlin to Leipzig, Nürnberg, and München via Dessau. Other scheduled Reichsbahn bus services in the region were: Braunschweig -- Salzgitter; Braunschweig -- Ringelheim; Halle -- Leipzig; Halle -- Bitterfeld; Gera -- Eisenberg; Seitz -- Weissenfels; Weimar -- Gera; Sömmerda -- Mühlhausen -- Kefferhausen. No detailed information is available on bus lines under private, or mixed private and public, ownership. Many busses as well as trucks are in regular wartime use bringing workers to the large industrial plants of the region. The housing shortage has made necessary fairly long commutation services stretching into rural areas, particularly around Braunschweig, Magdeburg, Dessau, Halle, and Merseburg.

ii. Trucking.

(1) General. No reliable information can be obtained concerning trucks owned by industrial undertakings or those engaged in local commercial trucking. However, both industrial and local commercial trucking are now believed to be under the same type of control as long-distance commercial trucking.

While details are available on long-distance commercial trucking, which is organized into the RKB, the RKB represents only a small fraction of the motor transport industry.

(2) Freight and Distribution Offices. One of the chief functions of the RKB is the operation of a freight distributing service. In most of the Central Industrial Region this service is directed by the RKB district office at Dresden (whose territory also includes Land Sachsen). The Braunschweig area is controlled by the RKB district office at Hannover, which is also responsible for Hannover and the region west to the Dutch frontier. In 1937 freight distribution offices (Laderaumverteilungsstellen,

abbr. LRV) of the Dresden district office, covering the Central Industrial Region, were located at Erfurt, Halle, Dessau, and Magdeburg. LRV of the Hannover district office were at Braunschweig and Goslar. The RKB also maintained accounting offices at Dessau and Gera; others have been established since 1937, but their location is not known.

LRV normally handled approximately 30 percent of all RKB traffic in the region, and they presumably have an even greater importance under wartime pooling requirements. Their services are open to all members of the RKB, and, since the war, to trucks belonging to industry as well. In 1937 they handled the following metric tonnages:

Braunschweig	39,966
Erfurt	30,440
Halle	49,425
Magdeburg	69,841

The Goslar and Dessau LRV, newly established at that time, had smaller totals.

(3) Volume of Traffic and Commodities. For statistical purposes, the RKB divides Germany into Trucking Districts (Verkehrsbezirke), which are subdivisions of the Reichsbahn's districts. Traffic in these districts for 1937 is shown on Table 63a.

In comparison with the rest of the Reich, RKB truck traffic of the Central Industrial Region is not heavy. Outgoing and incoming shipments were only 9.8 and 8.3 percent of total RKB shipments for the Reich. In a list of fifty-one major inter-trucking district shipping totals for 1937, only three from the Central Industrial Region are mentioned:

From	To	Total metric tons	Standing in list of 51
Merseburg	Berlin	28,456	22nd
Westfalian Ruhr	Braunschweig	21,090	49th
Magdeburg	Berlin	20,725	50th

Full information on the flow of RKB truck traffic from the Central Industrial Region to the rest of the Reich is obtainable only as between twenty-eight Economic Provinces (Wirtschaftsprovinzen). Three of these include most of the Central Industrial Region except Braunschweig, which is lumped with Hannover (Table 63b). The actual division between Hannover and Braunschweig (including Hildesheim) is known only for several movements. Thus, for incoming and outgoing traffic to the Elbe harbors, the shares of Braunschweig and Hildesheim are 22,129 and 22,324 tons. Of outgoing traffic to the Weser area, these districts send about 9,500 tons. From Hannover to Braunschweig truck traffic is about double that in the opposite direction.

Statistics on the type of commodities carried by RKB members are available for the Central German Economic District (Wirtschaftsbezirk Mitteldeutschland) (Table 64). Since this district includes the Land Sachsen and does not include the Braunschweig area, the statistics are not strictly applicable to the Central Industrial Region. However, they serve as a fair indication of commodity traffic in the general area. The distribution is by no means uniform for all parts of the Central Industrial Region. Cargo passing through the LRV in the city of Magdeburg, for example, was divided as follows:

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Table 63 a. TOTAL OUTGOING AND INCOMING RKB TRAFFIC IN TRUCKING DISTRICTS WITHIN THE CENTRAL INDUSTRIAL REGION, 1937

District	Area	Metric Tons Outgoing	Metric Tons Incoming	Relation of Outgoing to Incoming	Relation of Total to Reichsbahn equivalent 1/
				Percent	Percent
1122	Reg.-Bez. Hildesheim	82,218	53,354	154	3.5
1123	Braunschweig	117,712	130,610	90	
1801	Reg.-Bez. Magdeburg	191,301	136,257	140	1.8
1802	Anhalt	48,053	55,612	86	
1911	Reg.-Bez. Merseburg	243,444	132,082	184	1.3
1912	Reg.-Bez. Erfurt (minus the Kreise of Schleusingen and Ziegenrück, plus Sondershausen	48,413	78,390	62	
1920	Thüringen, minus Kreis Sondershausen, plus Schmalkalden, Schleusingen, Ziegenrück	138,195	147,208	94	1.5
Total for Central Industrial Region		869,336	733,513	119	2.0
Total for German Reich		8,837,750	8,837,750		1.8

1/ Districts 1801 and 1802 are comparable to Reichsbahn district 180; 1911 and 1912 to 191; 1920 to 192; while to Districts 1123 and 1122 must be added District 1121 (Reg.-Bez. Hannover plus Schaumburg-Lippe), with outgoing and incoming totals of 217,402 and 288,918, to enable comparison with Reichsbahn district 112. This has been done here in order to allow comparison with the Reichsbahn.

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	percent
Food, etc.	59.7
Metal goods	20.9
Wood and paper	6.6
Other goods	12.8

The percentage devoted to food is higher than in any other LRV, and is approached only by percentages in Hamburg and Bremen.

Table 63b. ORIGIN AND DESTINATION OF MOTOR FREIGHT CARRIED BY MEMBERS OF THE REICHS-KRAFTWAGEN-BETRIEBSVERBAND IN THE CENTRAL INDUSTRIAL REGION, 1937 (Metric Tons)

Economic Province (Wirtschafts-Provinz)	Hannover-Braunschweig		Anhalt and Magdeburg		Merseburg and Erfurt		Thüringen	
	Incoming	Outgoing	Incoming	Outgoing	Incoming	Outgoing	Incoming	Outgoing
Ostpreussen	275	1,525	91	198	130	487	490	21
Pommern and Mecklenburg	4,946	4,574	2,688	2,228	1,854	3,296	972	777
Berlin	9,758	26,481	18,219	31,453	9,859	31,001	6,261	12,912
Brandenburg and Grenzmark	8,930	6,183	12,140	10,461	10,687	6,381	3,793	3,693
Schleswig-Holstein	6,345	8,736	1,653	1,834	2,780	3,087	398	330
Elbe ports	109,843	51,390	12,068	12,190	16,604	7,368	10,236	19,812
Weser ports	25,611	37,433	1,515	2,820	5,174	5,343	3,040	2,303
Luneburg	9,087	28,135	1,920	5,108	3,810	5,069	1,615	1,152
Hannover-Braunschweig	33,921		17,197	29,576	10,035	17,701	4,954	3,584
Oberschlesien	1,631	351	389	393	589	671	428	479
Niederschlesien	4,190	5,138	4,870	2,870	5,718	3,337	3,589	1,140
Anhalt and Magdeburg districts	29,576	17,197	10,650		10,798	10,320	4,628	2,155
Merseburg and Erfurt districts	17,701	10,035	10,320	10,798	17,947		19,197	6,196
Thüringen	3,584	4,954	2,155	4,628	6,196	19,197	5,283	
Land Sachsen	24,558	30,440	32,505	20,866	26,318	37,471	23,501	17,252
Hessen-Nassau and Oberhessen	11,946	18,917	3,651	10,240	7,808	12,345	3,592	5,412
Southern Rheinprovinz	12,486	1,004	1,765	565	791	658	1,572	290
Hessen, South of the Main R.	1,871	3,535	1,005	972	2,769	1,615	1,135	4,948
Ruhr Region	72,661	44,117	23,260	20,842	24,753	26,196	25,947	9,812
Westfalen (except Ruhr)	28,189	29,990	8,367	15,851	7,605	9,787	3,430	2,351
Northern Rehinprovinz	29,217	22,387	11,838	14,181	11,004	17,969	6,405	7,381
Saar Region	2,522	1,385	639	550	1,220	557	235	243
Rheinpfalz	922	595	414	56	1,193	629	1,120	1,833

cont'd on next page

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Table 63.b. ORIGIN AND DESTINATION OF MOTOR FREIGHT CARRIED BY MEMBERS OF THE REICHS-KRAFTWAGEN-BETRIEBSVERBAND IN THE CENTRAL INDUSTRIAL REGION, 1937 (Metric tons)
(cont'd - 2)

Economic Province (Wirtschafts-Provinz)	Hannover-Braunschweig		Anhalt and Magdeburg		Merseburg and Erfurt		Thüringen	
	Incoming	Outgoing	Incoming	Outgoing	Incoming	Outgoing	Incoming	Outgoing
Baden	3,062	3,121	1,426	1,129	2,127	2,554	1,797	1,056
Württemberg	5,019	8,422	3,580	5,808	5,191	7,655	3,251	4,565
Mannheim-Ludwigshafen	6,846	3,796	2,372	1,136	7,386	4,358	2,525	936
Southern Bayern	4,082	7,611	2,500	12,942	3,486	17,301	2,530	9,201
Northern Bayern	4,103	5,961	2,672	8,909	6,640	21,557	5,284	13,071
TOTALS	472,882	417,332	191,869	239,354	210,472	291,857	147,208	138,195

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Table 64. RKB FREIGHT BY COMMODITIES IN THE CENTRAL GERMAN ECONOMIC DISTRICT (WIRTSCHAFTSBEZIRK), 1937

In percent of total tonnage

	Central German Economic District		Total for German Reich
	Sent	Received	
Fish, meat & dairy products	0.85	1.97	2.17
Cereals & legumes	2.58	2.21	3.20
Vegetables, fruit, coffee, raw tobacco	0.69	2.06	2.14
Manufactured foodstuffs and tobacco	19.74	16.04	18.62
Fodder	0.32	0.27	1.06
Other animal & vegetable raw materials	0.95	1.66	1.65
Coal and ores	0.06	0.30	0.14
Petroleum and mineral derivatives	1.86	1.43	1.35
Stones and earths	1.31	1.69	2.28
Chemicals	7.36	5.41	4.61
Leather, raw materials and semi-finished	1.65	1.93	1.75
Textile, raw materials and semi-finished	2.71	4.68	2.70
Wood	3.18	3.76	5.32
Cellulose & paper	21.54	11.84	10.62
Glass & porcelain	5.94	5.62	5.79
Iron & steel goods	11.32	20.48	19.03
Other metallic goods	2.26	3.41	4.25
Other industrial goods	8.28	6.97	6.34
Automobiles, household goods, miscellaneous	7.23	8.12	6.68
Live animals	0.17	0.16	0.35
	100.00	100.00	100.00

D. Waterways

1. Pattern of the Waterways Network in the Region. Two waterway systems intersect in the northeast corner of the Central Industrial Region (Map No. 1994). The Weser-Elbe Canal--the middle link in the Mittelland Canal system stretching from western to eastern Germany--lies along the northern boundary of the area. The Elbe River, navigable from the North Sea into Czechoslovakia, and its tributary, the Saale River, flow through the eastern part of the region (Map No. 1994).

From west to east, the principal points in the area connected by the Weser-Elbe Canal and its branches are Peine, Watenstedt, Braunschweig, and Fallersleben. As the final link in the canal was only completed in 1938, the potentialities of port development probably have not been fully realized. The Volkswagen plant at Fallersleben and the Reichswerke Hermann Göering at Watenstedt, are indicative of advantages afforded by the Mittelland Canal to industries requiring low-cost transportation for raw materials.

The principal ports in the reaches of the Elbe River within the region are Magdeburg, Schönebeck, Barby, Aken, Dessau, Wittenberg, Torgau, and Halle. Dessau lies on the Mulde river, a few kilometers above its junction with the Elbe. Halle lies on the Saale River, which joins the Elbe at Barby, and is the head of navigation for 400 ton barges.

2. Relationship of Waterways to the German Network. The waterways in the region occupy a most favorable position in the German network of inland navigation. Magdeburg, at the intersection of the Mittelland Canal and the Elbe River, is located in the geographical center of German waterways.

From Magdeburg, the focal point of waterways in the region, it is not only possible but economically feasible to ship goods to most of the important industrial and commercial centers of Germany. To the west of Magdeburg, barges of 1,000-ton capacity go through the Mittelland Canal to the industrial Ruhr and the great Rhine artery. Between Magdeburg and the Ruhr, a number of water routes branch from the Mittelland Canal to the south and north. At Minden, 1,000-ton barges can go down the Weser River to the port of Bremen, and 750-ton barges can ascend the stream south to Kassel, and beyond, to Meiningen; at Bergeshöveden, barges of the same capacity may leave the Mittelland Canal and enter the Dortmund-Ems Canal to reach the port of Emden. The Mittelland Canal system east of Magdeburg provides access for 750-ton barges to Potsdam and Berlin, at which point the Hohenzollern Canal, running to the northeast, connects with the Oder, at whose mouth lies the port of Stettin. At Potsdam the Teltow Canal and then the Oder-Spree Canal provide another waterways link with the Oder, which is navigable for 1,000-ton barges to Breslau, and beyond to Gleiwitz in the heart of the Silesian industrial district.

Barges of 1,500-ton capacity can proceed down the Elbe from Magdeburg to Hamburg and the North Sea coast. At Lauenburg on the Elbe a canal runs northeast to Lübeck on the Baltic Sea. The Kiel Canal branching from the estuary of the Elbe provides a connection with the port of Kiel. South of Magdeburg, 1,000-ton barges can ascend the Elbe to Dresden, and craft of smaller capacity can travel into Czechoslovakia, and by way of the Elbe tributary--the Moldava--reach Prague.

3. Hydrographic Conditions. The depth of water in the Mittelland Canal is maintained at eight ft. The pumping station at Minden draws water from the Weser, and supplies the Weser-Elbe Canal. Because the Weser is subject to considerable fluctuations in level, difficulty has been experienced in obtaining a sufficient water supply during periods of drought. The bombing in 1943 of the Eder Dam, which supplied water for navigation in the Middle Weser, prevented the pumping of the necessary quantity of water to maintain the proper level in the canal.

In spite of extensive regulating works, the water volume of the Elbe River is subject to great variations from season to season, and from year to year. The period of lowest water may occur any time between the middle of July and September. Complete data are not available, but it appears that suspension of traffic for two weeks may be expected every year. Spring floods do not hinder navigation but the flooding of low-lying warehouses and docks causes delays in loading.

Ice sufficient to hinder traffic on the Middle Elbe persists as long as sixty-nine days, the mean being thirty days. The Weser-Elbe section of the Mittelland Canal system has been completed too recently for the compilation of long-range data on ice conditions. Minden, the western terminus of the Weser-Elbe section averages fifteen days of fast ice per year, while Magdeburg, the eastern terminus, has twice this amount. The canal has only a very slight gradient, and consequently freezes over earlier than either the Weser or the Elbe Rivers, to which rivers, respectively, the figures for Minden and Magdeburg apply. The canal, however, is not subject to pack ice, which may cause suspension of river traffic beyond the ice period.

4. Administration. Before the war and up to 1941, the administration of inland navigation affairs was centralized in the Reich Ministry of Transport. The carriers, composed almost exclusively of private enterprises, were organized in a corporative scheme known as Transport Groups. The Department of Inland Shipping in the Ministry supervised, and in all essential respects controlled, the activities of the Inland Shipping Group, and was in charge of all matters pertaining to traffic. The Waterways Department of the Ministry exercised complete control over all navigable streams and canals classed as Reich Waterways. The staff of the Waterways Department, made up for the most part of technicians and engineers, was in charge of planning, construction, maintenance, and navigational aids such as lights, buoys, signals, and ice clearance.

Since 1941 the functions and staff of the Waterways Department, and its regional offices known as Waterways Directorates, have been transferred to the Office of the Inspector General for Water and Power (Speer).

a. Control of Inland Shipping. The Inland Shipping Transport Group is made up of Trade Groups: 1) individual owner-operators of boats, and navigation companies; 2) port and transshipment enterprises, public and private; and 3) miscellaneous enterprises known as the Auxiliaries of Inland Shipping.

The first two trade groups are completely organized on a regional basis. These regional organizations have become increasingly important during the war, and their respective headquarters are functioning as centers for the allocation of freight and routing of ships for the highest possible utilization of cargo space.

The Central Industrial Region is divided between two of the regional organizations of the trade groups: the Mittelland Canal falls under the jurisdiction of the region embracing the West German Canals and the Weser, with headquarters in Dortmund. The Elbe River and its tributaries the Saale and Unstrut, belong to the Elbe region, which has its headquarters in Hamburg.

b. Administration of Waterways. The navigable waterways of the Central Industrial Region come under the jurisdiction of the Magdeburg Waterways Directorate, which is subordinate to the Waterways Department in the Office of the Inspector General for Water and Power. Maintenance of waterways and navigational aids is undertaken by local Waterways Offices, under the supervision of the Magdeburg Waterways Directorate. Such offices are located at Torgau, Wittenberg, Halle, Braunschweig, Bernburg, and Magdeburg, which has two offices. In addition to these offices, which are concerned primarily with the routine care of established waterways, a number of special offices have been set up for the extraordinary construction projects associated with the Mittelland Canal. At Hohenwarthe and Rothensee, respectively, there are special Waterways Construction Offices for the erection of ship elevators at these points. Canal Construction Offices have also been established at Braunschweig for the branch canal to the Göring plant, and at Leipzig for the canalization of the Saale River between Halle and Leipzig. A Waterways Machinery Office at Magdeburg is the depot for equipment used on the Mittelland Canal east of Hannover, on the upper Elbe, and on the Saale River.

c. Police. The waterways and ports in the area are policed by the Reich Waterways Police, a branch of the Schutzpolizei. District headquarters are located in Magdeburg, and subordinate units at Lauenburg, Wittenberge and Wittenberg. Regulations governing the traffic on the Elbe River and Mittelland Canal, enforced by the waterways police, are outlined in the Inland Shipping Police decree of 12 April 1939.

d. The Towing Monopoly on the Mittelland Canal. In conformance with national policy concerning motive power on artificial waterways, towing on the Mittelland Canal is performed by the Towing Monopoly established for Preussen in 1913, and subsequently extended to apply to the Reich. To prevent damage to costly waterways structures, and to insure adequate traffic control, all barges and boats, powered or unpowered, must employ the services of tugs owned or controlled by the Reich Towing Monopoly.

In 1939 the Reich possessed 135 tug boats on the Mittelland Canal, and, in addition, held a permanent lease on twenty more. For periods of heavy traffic, agreements with private operators provide for the employment of tugs (thirty in 1939) on a part-time basis. The standard Mittelland Canal tug develops 270 hp. and is capable of towing 2,000 tons at seven km. per hour. The total towing charge is composed of three separate tolls: the canal toll, the towing toll based on distance covered, and the toll based on the weight of the cargo carried.

The limits of the towing monopoly on the Mittelland Canal System extend from the Rhine Wharf at Duisburg to the Hohenwarthe ship elevator, including branch canals. Towing offices are located in Duisburg, Hannover, and Magdeburg. Traffic on the Elbe is not subject to the towing monopoly.

5. Barges. The Mittelland Canal is capable of handling barges up to 1,200-ton capacity. The standard Mittelland Canal barge, however, is built to carry 1,000

tons, which is the maximum capacity of the ship elevator at Rothensee, and the capacity of the elevator under construction at Hohenwarthe.

That part of the Elbe which lies within the region is navigable for barges up to 1,500-ton capacity. The standard steel Elbe barge is rated at 1,300 tons, but owing to fluctuations of water level, full loading is not always possible. Therefore a great number of smaller craft--especially the 1,000-ton standard barge--are being profitably employed.

The Saale River, which branches from the Elbe at Barby, can accommodate barges of 400-ton capacity as far as Halle. It is unlikely that plans for making this stream navigable for 1,000-ton barges--scheduled for completion in 1942--have been realized. The Saale above Halle and up to Naumburg and the lower Unstrut River, which flows into the Saale at Naumburg, are capable of handling barges up to 200-ton capacity. The table below gives the dimensions of barges reaching Magdeburg:

Barge Type	Length		Width		Draught		Capacity
	feet	meters	feet	meters	feet	meters	metric tons
Mittelland Canal	262.5	80	29.5	9.0	6.6	2.00	1,000
Finow	131.2	40	15.0	4.5	4.6	1.40	200
Large Finow	134.5	41	16.7	5.1	5.7	1.75	300
Berlin	150.9	46	21.3	6.5	5.7	1.75	350
Saale	167.3	51	19.7	6.0	5.7	1.75	400
Breslau (Oder)	180.4	55	26.2	8.0	5.7	1.75	550
Niegripp	203.4	62	25.3	7.7	5.7	1.75	500
Plaue	213.3	65	26.2	8.0	5.7	1.75	650
Elbe	246.1	75	36.0	11.0	6.2	1.90	1,000
Steel Elbe	226.4	69	32.2	9.8	8.2	2.5	1,300

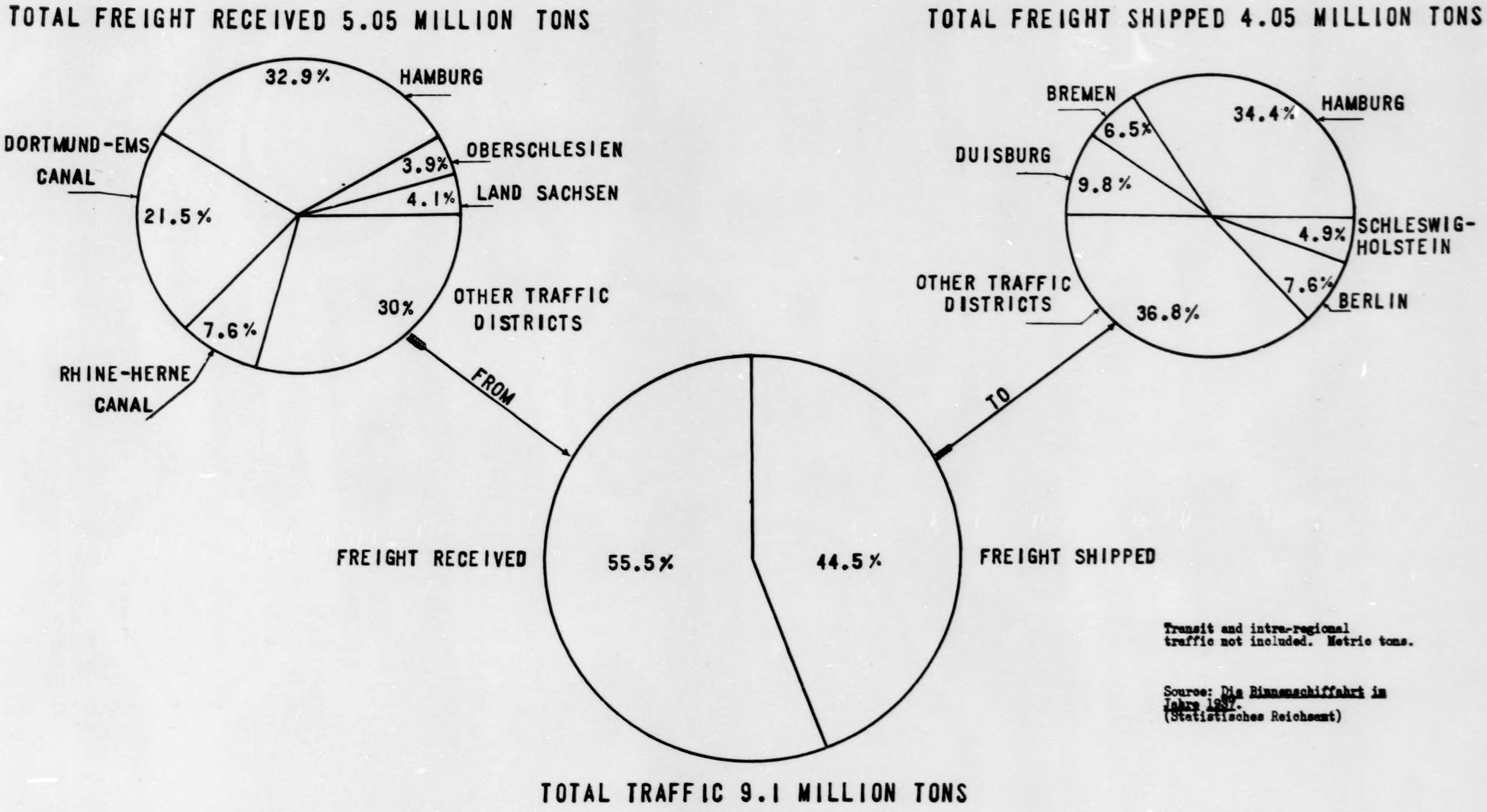
6. Traffic. The latest statistics available for the study of traffic in the Central Industrial Region are dated 1937 (Table 65). Since that time the final link in the Mittelland Canal has been completed, and Magdeburg,

for example, can receive coal from the Ruhr by a direct all-water route. Berlin, too, can receive coal directly from the Ruhr, not to speak of the multitude of semi-finished and finished goods formerly shipped by rail. Under the pressure of war, it is known that Mittelland Canal traffic has increased enormously and that the cargo cleared at the ports in the region has grown substantially. The figures, then, probably reflect the present traffic situation in an imperfect manner. However, these figures do show the minimum waterway traffic potentialities and afford a basis--assuming that the fleet remains intact--on which estimates for post-war traffic can be made.

The statistics of freight borne by the inland waterways in the district (Table 65) show the contributions of each of the regional statistical areas--which are identical with the limits of the statistical districts used in the study of railroad traffic (See Chart "Inland Waterways Traffic of Central German Industrial Region"). The Statistical districts, it should be noted, include some territory beyond the boundary of the region. Of the three districts making up the region, the Magdeburg district is foremost with over 4,000,000 tons of goods shipped. Coal, iron ore and iron goods, and fertilizer, in that order are the principal commodities handled. The Hannover district ships almost as much, but includes such large ports as Hildesheim, Hannover, and Münden, which lie outside the region. Coal, iron ore, and building materials constitute the chief items transported. The amount of goods transported in the Merseburg region--which includes only the Saale and Unstrut traffic--is relatively slight, being about 7 percent of the total traffic in the region. The chief commodities are wheat and potash. The region as

INLAND WATERWAYS TRAFFIC OF CENTRAL GERMAN INDUSTRAL REGION

ORIGIN AND DESTINATION BY TRAFFIC DISTRICTS (1937)



Transit and intra-regional
traffic not included. Metric tons.

Source: Die Binnenschiffahrt im
Jahre 1937.
(Statistisches Reichsamt)

a whole (the Magdeburg, Hannover, and Merseburg statistical districts combined) ships a large proportion of the entire inland waterways traffic in Germany. Traffic within the region is slight, and amounts to only a small fraction of the tonnage shipped and received. The transit traffic going through the region--i.e., not touching either Elbe or Mittelland Canal ports--is somewhat over 30 percent of the total traffic in the area.

Table 65. WATERWAYS TRAFFIC IN THE CENTRAL INDUSTRIAL REGION, 1937
(metric tons)

a. WATER TRANSPORTATION REGION MERSEBURG

SAALE AND UNSTRUT RIVERS

Nineteen Specific Commodities	Tonnage Shipped	Tonnage Received
Brown coal	15,437	--
Brown coal briquets	8,189	--
Brown coal cokes	364	--
Bituminous coal	350	2,385
Bituminous coal cokes	230	12,140
Wheat	116,012	4,472
Rye	300	24,460
Sugar beets	191	--
Raw sugar	8,463	5
Potash	63,070	556
Potash fertilizers	--	--
Gasoline	3,143	2,210
Nitrogen	1,016	--
Machines	94	6
Semi-finished iron and steel	--	14
Iron and manganese ore	--	--
Cement, mortar	10,563	--
Artificial stones, plates, pipes	2,748	--
Earth, gravel, sand	595	--
	230,765	46,248

TOTAL TONNAGE RECEIVED AND SHIPPED (Nineteen specific commodities)	277,013	
ALL OTHER COMMODITIES	375,234	
TOTAL	652,247	
TOTAL TRAFFIC INSIDE THE REGION	112,931	
TOTAL TRAFFIC REGION MERSEBURG		765,178 tons

The five most important regions where these commodities were:

	Shipped to		Received from	
1.	Hamburg	266,835 tons	Hamburg	182,418
2.	Schleswig-Holstein	42,088	Oberschlesien	15,631
3.	Berlin	24,727	Plaue-Ihle Canal	13,907
4.	Plaue-Ihle Canal	15,009	Oder in Pommern	14,767
5.	Brandenburg Waterways	14,435	Magdeburg	3,410

Table 65 (cont'd)

b. WATER TRANSPORTATION REGION HANNOVER

EMS-WESER CANAL AND WESER-ELBE CANAL (MITTELLAND CANAL)

Nineteen Specific Commodities	Tonnage Shipped	Tonnage Received
Brown coal		
Brown coal briquets		
Brown coal cokes		
Bituminous coal	833	1,427,968
Bituminous coal cokes	232	296,509
Wheat	102,832	19,328
Rye	9,237	20,120
Sugar Beets	--	--
Raw Sugar	54,003	640
Potash	--	516
Potash fertilizers	176,082	5
Gasoline	9,765	--
Nitrogen	--	3,445
Machines	26	583
Semi-finished iron and steel	13,528	2,340
Iron and manganese ore	513,308	103,414
Cement Mortar	118,710	60
Artificial stones, plates, pipes	4,773	85,196
Earth, gravel, sand	97	12,655
	1,003,426	1,972,779

NINETEEN SPECIFIC COMMODITIES TOTAL TONNAGE SHIPPED AND RECEIVED 2,976,205

ALL OTHER COMMODITIES 742,639

3,718,844

TOTAL TRAFFIC INSIDE THE REGION 19,868

TOTAL TRAFFIC REGION HANNOVER 3,738,712 tons

The five most important regions where these commodities were:

	Shipped to		Received from	
1.	Duisburg	398,874 tons	Dortmund-Ems Canal	1,082,835 tons
2.	Bremen	265,869	Rhine-Herne Canal	379,087
3.	Dortmund-Ems Canal	146,928	Emden	157,525
4.	Mannheim	72,008	Bremen	137,116
5..	Emden	57,684	Rhine-Herne Canal (in Rheinprov.)	101,047

Table 65 (cont'd)

c. WATER TRANSPORTATION REGION MAGDEBURG

THE ELBE IN THE REGION MAGDEBURG

Nineteen Specific Commodities	Tonnage Shipped	Tonnage Received
Brown coal	2,650	37
Brown coal briquets	77,639	4,809
Brown coal cokes	2,023	--
Bituminous coal	1,917	542,653
Bituminous coal cokes	7,290	1,535
Wheat	82,275	30,097
Rye	2,544	30,660
Sugar beets	52,742	4,199
Raw sugar	26,715	135,126
Potash	7,331	13
Potash fertilizers	442,353	229
Gasoline	4,277	40,508
Nitrogen	86,675	18,490
Machines	5,108	2,767
Semi-finished iron and steel	--	2,767
Iron and manganese ore	--	6,595
Cement, mortar	2,526	2,381
Artificial stones, plates, pipes	4,377	537
Earth, gravel, sand	143,082	652
	1,021,524	838,851

NINETEEN SPECIFIC COMMODITIES TOTAL TONNAGE SHIPPED AND RECEIVED	1,860,375
ALL OTHER COMMODITIES.	2,193,368
TOTAL	4,053,743
TRAFFIC INSIDE THE REGION	70,546
TOTAL TRAFFIC REGION MAGDEBURG	4,124,289 tons

The five most important regions where these commodities were:

	Shipped to		Received from	
1.	Hamburg	1,124,815 tons	Hamburg	1,479,905 tons
2.	Berlin	283,209	Land Sachsen	206,206
3.	Schleswig-Holstein	157,051	Oberschlesien	182,610
4.	Brandenburg Waterways	55,823	Schleswig-Holstein	71,252
5.	Land Sachsen	40,216	Brandenburg Waterways	37,653

Table 65 (cont'd)

d. TOTAL TONNAGE OF WATER TRANSPORTATION OF ENTIRE REGION

Nineteen Specific Commodities	Shipped	Received
Brown coal	18,087	37
Brown coal briquets	85,828	4,809
Brown coal cokes	2,387	--
Bituminous coal	3,100	1,949,718
Bituminous coal cokes	77,752	310,184
Wheat	301,119	53,896
Rye	12,081	75,240
Sugar beets	52,933	4,199
Raw Sugar	89,181	135,771
Potash	70,401	1,085
Potash fertilizers	618,435	234
Gasoline	17,185	42,718
Nitrogen	87,691	21,935
Machines	5,228	3,356
Semi-finished iron and steel	13,528	3,838
Iron and manganese ore,	513,308	110,009
Cement, mortar	131,799	2,441
Artificial Stones, plates, pipes	11,898	85,733
Earth, gravel, sand	143,774	13,307
	2,255,715	2,818,510

The five most important regions where all commodities shipped from the area are shipped to are:

1.	Hamburg	1,391,650
2.	Duisburg	398,974
3.	Berlin	307,936
4.	Bremen	265,869
5.	Schleswig-Holstein	198,139

Shipped		
The nineteen specific commodities	2,255,715	
All other commodities combined	1,350,447	
	3,606,162	
To abroad	458,369	
Total shipment	4,064,531	
Shipment within the region	13,754	
Shipment out of the region		4,050,777
Received		
The nineteen specific commodities	2,818,510	
All other commodities combined	2,000,162	
	4,818,672	
From abroad	237,067	
	5,055,739	
Receipts within the region	13,754	
Total traffic receipts of the region		5,041,985
Total Traffic inside the Traffic Regions		
Hannover region (Weser-Elbe canal)	19,868	
Magdeburg region (Elbe)	101,414	
Merseburg region (Saale)	112,931	
Thüringen region (none)	---	234,213
Traffic Between the Traffic Regions (internal traffic)		13,754

Table 65 (cont'd)

The five most important regions where all commodities received into the area are received from are:

1.	Hamburg	1,662,323
2.	Dortmund-Ems Canal	1,082,835
3.	Rhine-Herne Canal	379,087
4.	Land Sachsen	206,206
5.	Oberschlesien	198,241

The five Most Important Ports of the Region

1.	Magdeburg	1,800,000	total traffic
2.	Peine	1,270,000	" "
3.	Schönebeck	561,000	" "
4.	Braunschweig	498,000	" "
5.	Barby	353,000	" "

The Transit Traffic of Entire Region	5,000,000
TOTAL OF WATER TRAFFIC OF ENTIRE REGION	14,340,729 1/

1/ This total contains some duplications of shipments and receipts.

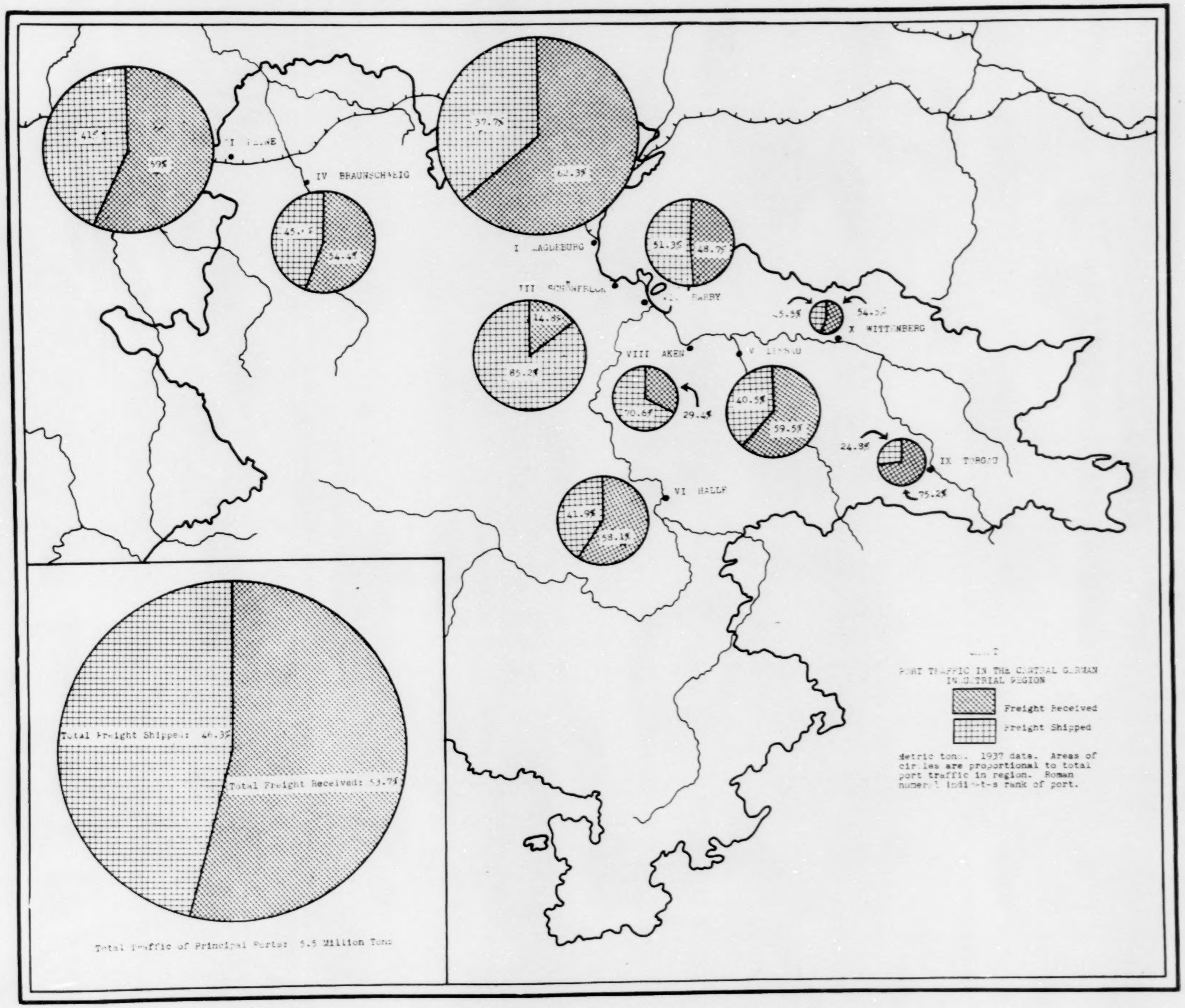
7. Ports. In 1937 four ports, Magdeburg, Peine, Schönebeck, and Braunschweig, handled 72 percent of the total water-borne tonnage shipped out of or received into the region. None of the remaining ports handled more than 7 percent of the total, being relatively minor points of waterways shipment (See the chart "Port Traffic in the Central German Industrial Region", and Table 66, columns a and b). Excepting Schönebeck, which ships out large quantities of potash, and the minor ports, the excess of goods received over goods shipped reflects the region's absorption of bulky raw materials. However, the total tonnage of freight received is only slightly larger than tonnage shipped, and an unusual balance between incoming and outgoing waterway traffic flow is exhibited. The figures on inland port traffic include all freight handled except transit freight moving through the port.

The principal transshipment ports are Schönebeck, Magdeburg, Dessau, Braunschweig, and Aken (Table 66, columns c and d, and Chart "Freight Transshipment in Ports of the Central German Industrial Region"). The relationship between total port traffic and rail-water transshipment is shown by the Chart "Comparison of Port Traffic and Transshipment in the Central German Industrial Region".

The tables accompanying the individual port descriptions present total tonnage receipts and shipments in 1935 and 1937, and a list of the principal commodities handled in 1935. The data on rail-water and water-rail transshipment (1937) are given as a basis for determining the capacity of the facilities handling such transshipment. It may be assumed that goods not transshipped are consumed locally. Owing to the fact that inland shipping in the district has exhibited a steady growth in the immediate pre-war years and during the war, the amount of the goods handled may be accepted as a minimum estimate of the capacity of port facilities.

Table 66. DISTRIBUTION OF PORT TRAFFIC IN THE CENTRAL INDUSTRIAL REGION, 1937

Port	a Total Traffic (metric tons)	b Percentage of Total Traffic	c Percentage of Total Traffic Transshipped	d Percentage of Individual Port's Traffic Transshipped
Magdeburg	1,799,969	32.4	18.1	17.7
Peine	1,269,498	22.8	--	--
Schönebeck	560,586	10.0	29.9	94.4
Braunschweig	497,513	8.9	13.4	47.4
Dessau	391,297	7.0	14.4	64.6
Halle	360,771	6.5	2.8	14.0
Barby	352,885	6.4	8.8	43.9
Aken	186,825	3.3	9.6	90.4
Torgau	97,310	1.8	1.4	26.0
Wittenberg	46,917	0.9	1.6	59.9
	5,563,571	100	100	



CHART

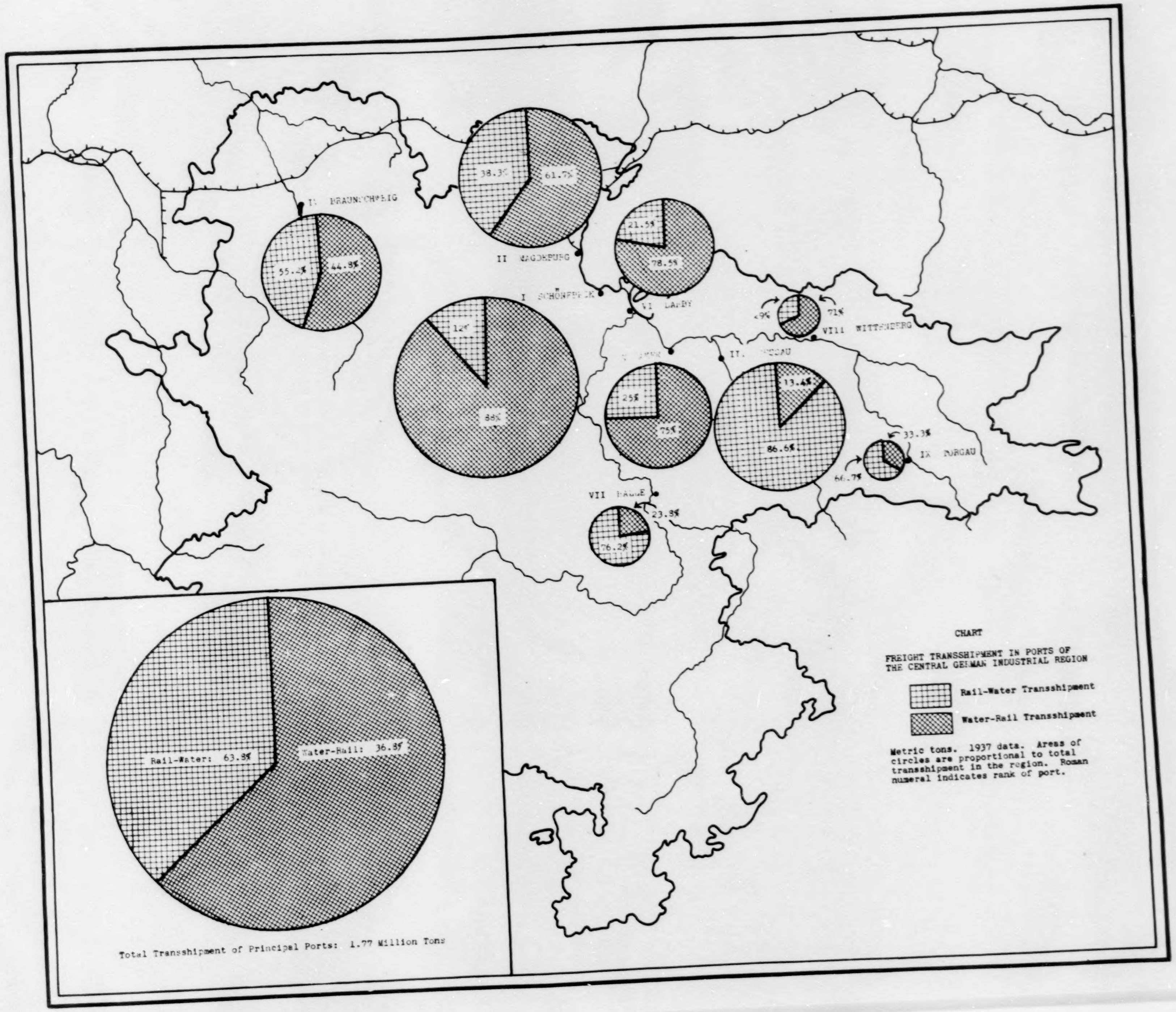
PORT TRAFFIC IN THE CENTRAL GERMAN INDUSTRIAL REGION

▨ Freight Received

⊞ Freight Shipped

Metric tons. 1937 data. Areas of circles are proportional to total port traffic in region. Roman numeral indicates rank of port.

II PEINE
41%
59%
IV BRAUNSCHWEIG
45.6%
54.4%
I MAGDEBURG
37.7%
62.3%
III SCHÖNEBECK
14.8%
85.2%
II BARBY
51.3%
48.7%
X WITTENBERG
45.5%
54.5%
VIII AKEN
70.6%
29.4%
V DESSAU
40.5%
59.5%
IX TORGAU
24.8%
75.2%
VI HALLE
41.9%
58.1%
Total Freight Shipped: 46.3%
Total Freight Received: 53.7%
Total Traffic of Principal Ports: 5.5 Million Tons



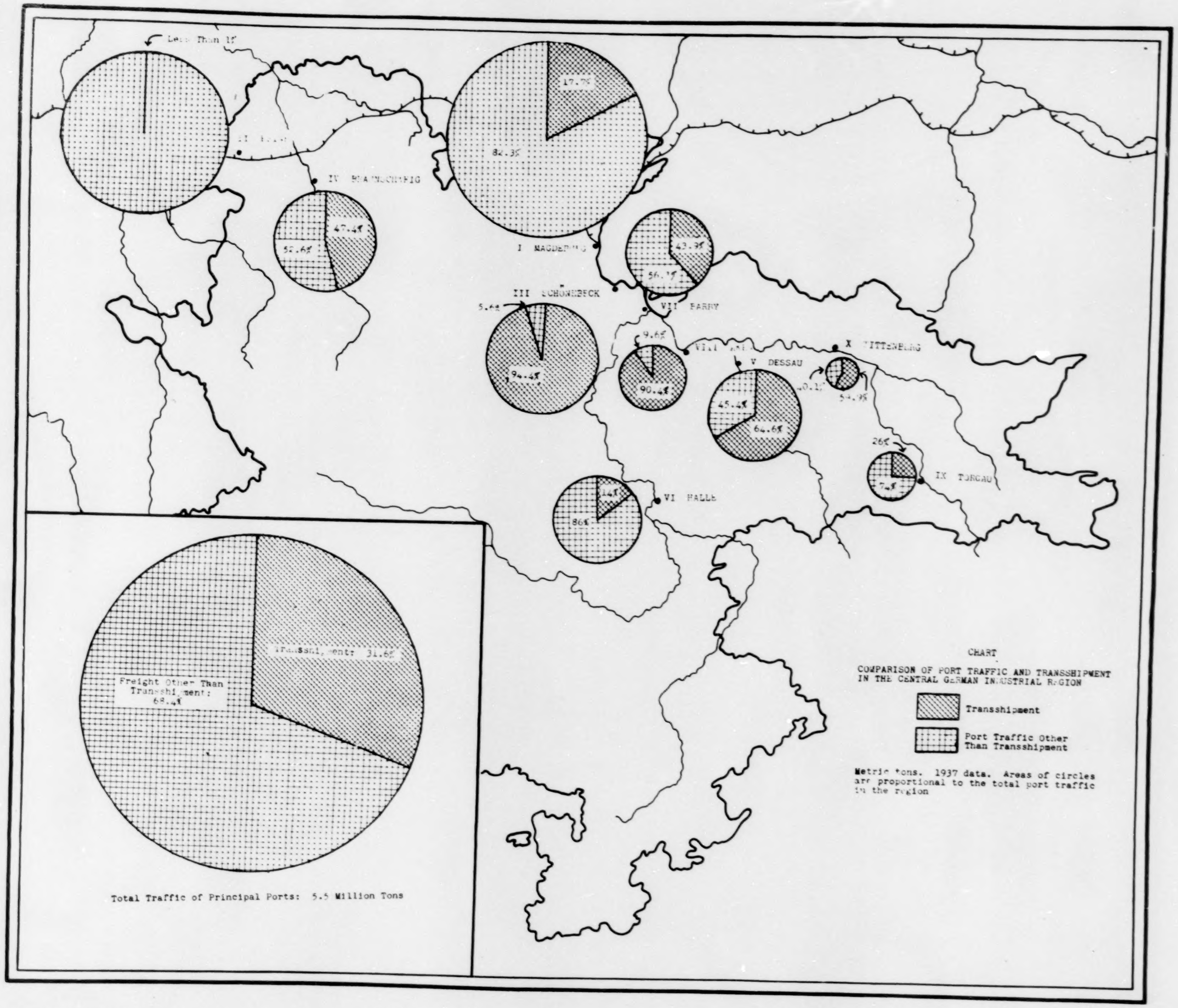
I SCHÖNEBECK
88%
12%
II MAGDEBURG
38.3%
61.7%
III ...SSAU
13.4%
86.6%
I... BRAUNSCHWEIG
55.2%
44.8%
V ...
25%
75%
VI BARBY
21.5%
78.5%
VII HALLE
23.8%
76.2%
VIII WITTENBERG
29%
71%
IX TORGAU
33.3%
66.7%
▦ Rail-Water Transshipment
▩ Water-Rail Transshipment
Rail-Water: 63.8%
Water-Rail: 36.8%

CHART

FREIGHT TRANSSHIPMENT IN PORTS OF THE CENTRAL GERMAN INDUSTRIAL REGION

Metric tons. 1937 data. Areas of circles are proportional to total transshipment in the region. Roman numeral indicates rank of port.

Total Transshipment of Principal Ports: 1.77 Million Tons



Less Than 1%
II
IV BRAUNSCHWEIG
47.4%
52.6%
I MAGDEBURG
17.7%
82.3%
43.9%
56.1%
III SCHÖNEBECK
5.6%
94.4%
VII BARBY
9.6%
90.4%
VIII
V DESSAU
45.4%
64.6%
X WITTENBERG
40.1%
59.9%
26%
74%
IX TORGAU
VI HALLE
14%
86%
Transshipment: 31.6%
Freight Other Than Transshipment: 68.4%
Transshipment
Port Traffic Other Than Transshipment

CHART

COMPARISON OF PORT TRAFFIC AND TRANSSHIPMENT IN THE CENTRAL GERMAN INDUSTRIAL REGION

Metric tons. 1937 data. Areas of circles are proportional to the total port traffic in the region

Total Traffic of Principal Ports: 5.5 Million Tons

a. Mittelland Canal Ports.

i. Peine. The port is on the southern bank of the Mittelland Canal, between the cities of Peine and Gross Ilsede, and adjacent to the works of the Ilseder Hütte. It serves primarily for handling coal, ore, and steel products of the Ilseder Hütte, but is equipped for the transshipment of potash, sugar, and lumber of other shippers (Table 67).

The port consists of one basin approximately 377 ft. (115 m.) long and 92 ft (28 m.) wide, with the long axis of the basin at right angles to the canal. At the junction of the port with the canal the latter is 197 ft. (60 m.) wide 492 ft. (150 m.) east and west of the entrance, and allows ships to enter or leave without delaying canal traffic. At the north end the basin is 164 ft. (50 m.) wide for ships' turnabout. The area of the port is 578 acres (234 hectares).

Both of the long sides of the basins, i.e., the eastern and western quays, are served by double-track railroads, totalling 1.4 mi. (2.2 km.), and connected at Klein Ilsede with the Peine-Ilsede railroad, a privately-owned line linked with the Reichsbahn.

The port is equipped only for the transshipment and open storage of bulk commodities: there are no storage or transshipment sheds. The east quay is equipped with two electric-powered travelling cranes, each with a lift of six tons, and a capacity of 150 tons per hour. There are two mobile steam-powered rail cranes, each with a five-ton lift, and a capacity of seventy tons of coal per hour. Coal at the port is transferred to self-dumping cars. The ore that is shipped out is dumped directly from cars into barges. The annual capacity of the port is estimated at 1,800,000 tons.

Transshipment at Peine in 1937 was less than 5,000 tons, and hence was not included in official statistics for that year.

TABLE 67. PORT TRAFFIC AT PEINE
(Metric tons)

	Receipts	Shipments	Total
All goods (1937)	748,900	520,600	1,269,500
All goods (1935)	611,000	630,000	1,241,000
Selected commodities (1935):			
Brown coal	-	-	-
Coal	608,000	-	608,000
Petroleum	-	-	-
Lumber and wood products	-	-	-
Stone, gravel, sand	-	-	-
Iron ore	-	614,400	614,400
Pig iron	3,400	2,000	5,400
Semi-finished iron goods) Other iron goods)	- -	1,200	1,200
Ores other than iron	-	12,000	12,000
Potash	-	-	-
Other fertilizer	-	100	100
Wheat	-	-	-
Rye	-	-	-
Other cereals	-	-	-
Flour	-	-	-
Salt	-	-	-
Sugar	-	-	-

ii. Watenstedt. About 4.3 mi. (7 km.) west of Braunschweig a canal branches from the Mittelland Canal and runs south for approximately 9.3 mi. (15 km.) to Watenstedt, the site of the Hermann Göring works. The terminus of the canal is near the southwest corner of the plant. A port area whose water level is controlled by a double lock at Uefingen has been built up about 1.7 mi. (2.8 km.) north of the terminus. Recent reports indicate that the port area and its facilities have been fully developed. More than 100 large barges (200-1,000 tons) are said to have been in the port basin at one time waiting to discharge coal cargo from the Ruhr. There are six electric cranes, two each of 6- 12- and 15-ton capacity. Individual barges, it has been noted, have been discharged at the rate of 1,250 tons per hour. After unloading, barges proceed to Peine, where they receive iron ore for the Ruhr. A round trip, including loading and discharging, takes about twenty days.

iii. Braunschweig. The port receives coal, coke and industrial products, and ships agricultural products - wheat, cereal products, sugar, and salt (Tables 68 and 69).

The port is located about 2.5 mi. (4 km.) north of the city near Braunschweig-Veltenhof. The basin, which branches directly from the canal with its longest dimension at right angles to the canal, is 229 ft. (70 m.) wide, 1,312 ft. (400 m.) long, and has a total water area of 111 acres (45 hectares). The water depth is 11.5 ft. (3.5 m.). The entrance from the basin into the canal is wide enough to permit turnabouts.

Along the south quay there are two warehouses and a transit shed for general merchandise and grain. A silo for foodstuffs adjoins the warehouses. Three rail sidings and a road serve the south quay and the warehouses. There are two travelling cranes, each having a capacity of five tons, and a maximum reach of 75 ft. (23 m.). The north quay, designed for the transshipment of bulk

Table 68. PORT TRAFFIC AT BRAUNSCHWEIG
(metric tons)

	Receipts	Shipments	Total
All goods (1937)	271,400	226,100	497,500
All goods (1935)	139,000	147,000	286,000
Selected commodities (1935):			
Brown coal	-	-	-
Coal	94,300	1,000	95,300
Petroleum	300	-	300
Lumber and wood products	100	600	700
Stone, gravel, sand	7,500	700	8,200
Iron ore	-	200	200
Pig iron	1,200	200	1,400
Semi-finished iron goods Other iron goods	5,200	200	5,400
Ores other than iron	-	300	300
Potash	-	-	-
Other fertilizer	5,300	-	5,300
Wheat	2,500	32,500	35,000
Rye	3,400	-	3,400
Other cereals	2,800	1,300	4,100
Flour	1,200	3,800	5,000
Salt	-	77,200	77,200
Sugar	-	26,100	26,100

Table 69. RAIL-WATER TRANSSHIPMENT AT BRAUNSCHWEIG
(metric tons)

Commodities	1937 Transshipments from Railroad to Waterway	1937 Transshipments from Waterway to Railroad
Foodstuffs	58,347,000	22,079,000
Ores	2,110,000	99,000
Coal and peat	1,385,000	55,161,000
Stone, gravel, sand, cement	618,000	259,000
Other mineral raw materials	63,634,000	131,000
Chemical products (except fertilizer)	898,000	5,000
Fertilizer	47,000	-
Wood and wood products	1,264,000	99,000
Ceramics and glass products	58,000	17,902,000
Metals and metal products	1,607,000	10,098,000
Vehicles and other industrial products	-	277,000
Household furniture	237,000	35,000
	130,205,000	106,145,000
Total	236,350,000	

commodities such as coal and salt, is equipped with a traveling quay crane and a double siding, and has a large area for open storage. The port railroad has about 4.4 mi. (7 km.) of tracks, an engine shed and a workshop. The railroad is connected with the Braunschweig-Celle line of the Reichsbahn, and two private railroads the Braunschweigische Landeseisenbahn and the Braunschweig-Schöninger Eisenbahn.

iv. Fallersleben is the site of the famous Volkswagen Werke, and is the scene of extensive manufacure of military equipment. The port serving the plant is located on the northern bank of the Mittelland Canal at the eastern end of the plant, opposite the village of Fallersleben. The entrance to the port is funnel-shaped to allow for barge movement without obstructing canal traffic, The port basin lies at right angles to the canal. It is estimated that the port basin is about 492 ft. (150 m.) long and 98 ft. (30 m.) wide. As the plant produced over 9,000 military automobiles in 1943, it is reasonable to suppose that the port is completely equipped with travelling cranes of 10-ton capacity for handling coal, as well as with other crane equipment for unloading the types of raw material consumed in the plant.

b. Elbe Ports.

i. Magdeburg, the largest port in the region (Tables 70 and 71), is situated on the left bank of the Elbe River, and is connected with the Mittelland Canal by means of a branch canal. Magdeburg has a total quay length of 5 mi. (8 km.), divided among open loading shores along the main channel of the Elbe and three harbors.

(1) Elbe Quays. Below the Adolf Hitler bridge there is an almost continuous series of quays and transfer places on the left and right banks of the river.

(a) The "Magistrats" section along the left bank, 1,804 ft. (550 m.) long, is used chiefly for the transshipment of

Table 70. PORT TRAFFIC AT MAGDEBURG
(metric tons)

	Receipts	Shipments	Total
All goods (1937)	1,121,077	678,892	1,799,969
All goods (1935)	832,000	504,000	1,336,000
Selected commodities (1935):			
Brown coal	6,700	46,500	53,200
Coal	338,800	73,800	412,600
Petroleum	69,600	6,600	76,200
Lumber and wood products	800	800	1,600
Stone, gravel, sand	700	34,100	34,800
Iron ore	100	-	100
Pig iron)			
Semi-finished iron goods)	39,500	7,300	46,800
Other iron goods)			
Ores other than iron	32,900	15,800	48,700
Potash		800	800
Other fertilizer	7,900	1,700	9,600
Wheat	15,900	64,500	80,400
Rye	34,700	5,100	39,800
Other cereals	48,200	11,700	59,900
Flour	7,800	20,100	27,900
Salt	-	44,200	44,200
Sugar	36,900	78,500	115,400

Table 71. RAIL-WATER TRANSSHIPMENT AT MAGDEBURG
(metric tons)

	1937 Transshipments from	
Commodities	Railroad to Waterway	Waterway to Railroad
Foodstuffs	37,174	56,628
Ores	-	80
Coal and peat	46,036	1,929
Petroleum and Products	-	20,465
Stone, gravel, sand, cement	481	812
Other mineral raw materials	106,541	8,913
Chemical products (except fertilizer)	2,763	1,093
Fertilizer	-	5,205
Leather and textile raw materials	20	451
Wood and wood products	629	11,902
Ceramics and glass products	73	65
Metals and metal products	3,863	11,432
Vehicles and other industrial products	88	3,076
Household furniture	138	570
	197,806	122,621
TOTAL	320,427	

building materials, coal, grain, and foods. The transshipment facilities are owned by the city of Magdeburg and leased to operators. The area is subject to flooding at high water.

(b). The Elbe Warehouse section is a combination port and warehouse section handling and transshipping goods of high value.

(c) The Packhoff district is used for the transshipment of fodder.

(d) The Petri and Jacobsförder district has 984 ft. (300 m.) of quays. These and the Packhoff quays are falling into disuse with the development of the canal port (see below).

(e) The Handelshafenvorland on the left bank of the river is used almost exclusively for transshipment, and has 0.8 mi. (1,300 m.) of quays. As the area is only 2.6 ft. (0.8 m.) below the highest water level it is only rarely subject to flooding. Transshipping facilities are privately owned.

(f) The Zollelbe wharves are located on the right bank of the river, and are owned by the state of Preussen. They have been leased to several forwarding agencies which operate the transshipment facilities. The wharves are 1,640 ft. (500 m.) long, and are subject to flooding, All of the Elbe quays have railroad sidings and are connected with the Reichsbahn.

(2) The Handelshafen, a commercial port, is a basin 147-295 ft. (45-90 m.) wide and 3,281 ft. (1,000m.) long, located in the heart of the city. It lies parallel to the river, to which it is connected by a channel. Grain, fodder, salt, potash, saltpeter, wood, stone, iron, gravel, and sand are the principal commodities handled in the port. A customs office is located in the port area. Facilities include sixteen electric cranes, one hydraulic crane of 21-ton capacity, and a pneumatic grain conveyor capable of handling forty tons per hour. There are sixteen public warehouses, and storage facilities for over 55,000 tons of grain.

(3) The Industrial Port, also a basin connected with the Elbe, is situated in Rothensee, a suburb of Magdeburg. The basin is 203 ft. (62 m.) wide and 1.03 mi. (1,670 m.) long. The winter port and the state shipyard are located on the northern end of the basin. The most important commodity handled is coal, which is used by the industries in the vicinity. The port facilities are accessible to rail and road transport.

(4) The Canal Port is located north of the Industrial Port, and branches from the "Elbeabstieg", the canal leading from the Mittelland Canal to the Elbe. A total of four basins are planned, two of which have been completed, each 1,968 ft. (600 m.) long, and 236 ft. (72 m.) wide. Between the basins and the canal there is a large mole which affords 1.4 mi. (2.3 km.) of anchorage, and can also be used as a transshipment wharf. Total length of quays is 9.3 mi. (15 km.) and total water area 123.6 acres (50 hectares). The canal port area is the scene of rapidly developing industries. Of the 1,027.8 acres (420 hectares) of ground space adjacent to the port, 271.8 (110) have already been occupied by gas works, a steam-electric power plant, a zinc smelter, and other industries.

The Canal, Industrial, and Commercial Ports are under the management of Hafen Aktiengesellschaft, which is entrusted with the operation and maintenance of port facilities, the port railroad, the construction of roads serving the canal port, and the development of required additions to the existing quayage and installations.

ii. Schönebeck is situated about 10.6 mi. (17 km.) above Magdeburg on the left bank of the Elbe. It ships out large quantities of potash fertilizer, as well as salt, both of which are produced near the city. Receipts are scarcely 15 percent of the shipments. Almost all of the goods handled in this port are transshipped, only a small fraction being consumed locally (Tables 72 and 73).

Table 72. PORT TRAFFIC AT SCHÖNEBECK
(metric tons)

	Receipts	Shipments	Total
All goods (1937)	82,634	477,952	560,586
All goods (1935)	52,000	245,000	297,000
Selected commodities (1935):			
Brown coal	500	-	500
Coal	2,200	-	2,200
Petroleum	100	-	100
Lumber and wood products	3,300	-	3,300
Stone, gravel, sand	-	3,100	3,100
Iron ore	-	-	-
Pig iron	6,200	-	6,200
Semi-finished iron goods)			
Other iron goods)	1,400	-	1,400
Ores other than iron	-	-	-
Potash	-	88,300	88,300
Other fertilizer	10,000	1,200	11,200
Wheat	600	24,300	24,900
Rye	7,000	2,700	9,700
Other cereals	3,500	4,300	7,800
Flour	-	-	-
Salt	600	101,100	101,700
Sugar	-	-	-

Table 73. RAIL-WATER TRANSSHIPMENT OF SCHÖNEBECK
(metric tons)

	1937 Transshipments from	
Commodities	Railroad to Waterway	Waterway to Railroad
Foodstuffs	1,931	14,751
Ores	-	1,351
Coal and peat	-	19,400
Petroleum and products	-	2,575
Stone, gravel, sand, cement	36	-
Other mineral raw materials	167,459	3,690
Chemical products (except fertilizer)	10,747	177
Fertilizer	284,927	10,663
Ceramics and glass products	1,042	
Metals and metal products	-	11,026
Vehicles and other industrial products	-	1
	466,142	63,534
TOTAL	529,676	

There are three port areas in or near the community:

1) Fringing quays along the river bank just south of the municipal bridge.

2) River quays, and two basins opening directly into the stream just north of the city, near the freight station.

3) Two basins near the village of Frohse on the northern outskirts of the city. Total length of quay walls, river fringing, and basins is 2.2 mi. (3.6 km.). The water area of the basins is 22.2 acres (9 hectares). The port is equipped with three hydraulic and seven steam-powered cranes, though it is very likely that electric-powered equipment has replaced these in recent years. All three port areas have railroad sidings, and are linked with the Reichsbahn switching yards at Schönebeck. Most of the goods shipped are bulk commodities, and warehouse facilities are slight. There are about 22.2 acres (9 hectares) of ground for open storage.

iii. Barby is situated on the left bank of the Elbe River, a few miles north of the mouth of the Saale River. The principal goods handled are potash, cereals, and salt. Normally somewhat more than one-third of the total traffic is transshipped (Tables 74 and 75).

iv. Aken is an Elbe port, handling cereal and fertilizer (Tables 76 and 77). Port facilities include eight cranes (capacity not known), a grain conveyor, grain silo, grain cleaner and dryer, two locomotives, and twenty railroad cars. The silo and warehouses have a combined capacity of 20,000 tons of grain and 8,000 tons of other commodities. The area for open storage can accommodate 15,000 tons.

v. Dessau, located on the Mulde River, has two ports on the Elbe, which is about 2.2 mi. (3.6 km.) distant from the city. Wallwitzhafen lies on the left bank of the Elbe, and has two basins leading directly from the river. Rosslau, the other port, is situated on the right bank, has a triangular-shaped basin separated from the river by a mole, which is also used for anchorage and the

Table 74. PORT TRAFFIC AT BARBY
(metric tons)

	Receipts	Shipments	Total
All goods (1937)	171,571	181,314	352,885
All goods (1935)	120,000	147,000	267,000
Selected commodities (1935):			
Brown coal	-	1,400	1,400
Coal	500	-	500
Petroleum	500	100	600
Lumber and wood products	-	100	100
Stone, gravel, sand	400	2,300	2,700
Iron Ore	1,600	-	1,600
Pig iron	600	100	700
Semi-finished iron goods	700	-	700
Other iron goods	700	-	700
Ores other than iron	-	-	-
Potash	-	40,700	40,700
Other fertilizer	-	1,300	1,300
Wheat	-	400	400
Rye	-	-	-
Other cereals	97,900	300	98,200
Flour	-	-	-
Salt	-	17,900	17,900
Sugar	-	-	-

Table 75. RAIL-WATER TRANSSHIPMENT AT BARBY
(metric tons)

Commodities	1937 Transshipments from	
	Railroad to Waterway	Waterway to Railroad
Foodstuffs	4,942	13,026
Ores	-	2,352
Coal and peat	30	3,910
Petroleum and products	41	95
Stone, gravel, sand, cement	12,439	-
Other mineral raw materials	8,222	220
Chemical products (except fertilizer)	7,109	51
Fertilizer	81,447	-
Leather and textile raw materials	-	13
Wood and wood products	458	1,406
Metals and metal products	7,095	12,311
Vehicles and other industrial products	10	-
	121,793	33,384
TOTAL	155,177	

Table 76. PORT TRAFFIC AT AKEN
(metric tons)

	Receipts	Shipments	Total
All goods (1937)	50,726	132,099	186,825
All goods (1935)	115,000	158,000	273,000
Selected commodities(1935):			
Brown coal	600	12,600	13,200
Coal	-	-	-
Petroleum	400	300	700
Lumber and wood products	75,400	200	75,600
Stone, gravel, sand	100	-	100
Iron ore	-	-	-
Pig iron	-	-	-
Semi-finished iron goods	-	-	-
Other iron goods	-	-	-
Ores other than iron	-	-	-
Potash	-	14,300	14,300
Other fertilizer	4,600	108,100	112,700
Wheat	4,000	10,300	14,300
Rye	3,700	500	4,200
Other cereals	-	500	500
Flour	-	-	-
Salt	6,800	-	6,800
Sugar	-	-	-

Table 77. RAIL-WATER TRANSSHIPMENT AT AKEN
(metric tons)

	1937 Transshipments from	
Commodities	Railroad to Waterway	Waterway to Railroad
Foodstuffs	5,397	7,047
Coal and peat	16,174	-
Petroleum and products	200	15
Stone, gravel, sand, cement	77	129
Other mineral raw materials	7,788	15,636
Chemical products (except fertilizer)	4,779	35
Fertilizer	92,328	5,212
Wood and wood products	-	13,615
Metals and metal products	-	458
	126,743	42,147
TOTAL	168,890	

transfer of goods. Lumber, ores, and petroleum were the principal commodities handled in 1935 (Tables 78 and 79), but with the large-scale development of aircraft industry in the city, the kind and volume of goods shipped has probably undergone great changes. Both port areas are connected with the Reichsbahn.

vi. Wittenberg, a small port, is located on the right bank of the Elbe. The chief items handled are brown coal and building materials (Tables 80 and 81).

vii. Torgau is located near the southern boundary of the region on the left bank of the Elbe. About half of the goods handled are transshipped. The principal commodities are brown coal, petroleum and wheat (Tables 82 and 83).

viii. Halle is a cereal and coal port, the importance of which has grown since the construction of the Mittelland Canal and the improvement of the Saale River (Tables 84 and 85). Quays are located along the river and extend for 3280 ft. (1000 m.) along the right (north) bank. Warehouses and transshipment sheds serving the port area occupy 2.4 acres (9576 square meters) of ground. Railroad sidings connected with the Reichsbahn are located back of the warehouses. A road connection leads to the Halle-Leipzig Autobahn 5 mi. (8 km.) distant. There are two 2-ton and two 5-ton capacity cranes, owned by the local port authority.

Table 78. PORT TRAFFIC AT DESSAU
(metric tons)

	Receipts	Shipments	Total
All goods (1937)	232,511	158,786	391,297
All goods (1935)	174,000	106,000	280,000
Selected commodities (1935)			
Brown coal	-	9,600	9,600
Coal	-	-	-
Petroleum	28,400	-	28,400
Lumber and wood products	47,000	-	47,000
Stone, gravel, sand	-	-	-
Iron ore	-	-	-
Pig iron	-	-	-
Semi-finished iron goods) Other iron goods)	-	1,500	1,500
Ores other than iron	19,000	11,700	30,700
Potash	-	-	-
Other fertilizer	12,700	200	12,900
Wheat	900	1,300	2,200
Rye	5,700	400	6,100
Other cereals	7,500	-	7,500
Flour	100	100	200
Salt	-	-	-
Sugar	600	11,500	12,100

Table 79. RAIL-WATER TRANSSHIPMENT AT DESSAU
(metric tons)

Commodities	1937 Transshipments from Railroad to Waterway	1937 Transshipments from Waterway to Railroad
Foodstuffs	-	16,438
Ores	-	33,442
Petroleum and products	-	29,977
Stone, gravel, sand, cement	-	10
Other mineral raw materials	-	83,193
Chemical products (except fertilizer)	-	6,790
Fertilizer	35,075	17
Leather and textile raw materials	-	1,653
Wood and wood products	-	36,011
Ceramics and glass products	-	206
Metals and metal products	-	8,952
Vehicles and other industrial products	-	837
Household furniture	-	58
	35,075	217,854
TOTAL	252,929	

Table 80. PORT TRAFFIC AT WITTENBERG
(metric tons)

	Receipts	Shipments	Total
All goods (1937)	24,509	22,408	46,917
All goods (1935)	22,000	9,000	31,000
Selected commodities: (1935)			
Brown coal	1,000	4,600	5,600
Coal	300	400	700
Petroleum	1,100	-	1,100
Lumber and Wood Products	1,100	-	1,100
Stone, Gravel, Sand	3,300	-	3,300
Iron Ore	-	-	-
Pig Iron	-	-	-
Semi-finished Iron goods	-	-	-
Other Iron goods	-	-	-
Ores other than Iron	-	-	-
Potash	-	-	-
Other Fertilizer	100	300	400
Wheat	-	1,800	1,800
Rye	300	-	300
Other Cereals	800	-	800
Flour	-	-	-
Salt	-	-	-
Sugar	-	-	-

Table 81. RAIL-WATER TRANSSHIPMENT AT WITTENBERG
(metric tons)

Commodities	1937 Transshipments from Railroad to Waterway	1937 Transshipments from Waterway to Railroad
Foodstuffs	105	4,502
Coal and Peat	17,740	-
Petroleum and Products	-	7
Stone, Gravel, Sand, Cement	450	2,150
Other Mineral Raw Materials	-	30
Chemical Products (except Fertilizer)	-	36
Leather and Textile Raw Materials	-	35
Wood and Wood Products	-	579
Ceramics and Glass Products	-	314
Metals and Metal Products	1,580	171
Vehicles and other Industrial Products	-	345
Household Furniture	-	19
	19,875	8,188
TOTAL	28,063	

Table 82. PORT TRAFFIC AT TORGAU
(metric tons)

	Receipts	Shipments	Total
All goods (1937)	73,181	24,129	47,310
All goods (1935)	50,000	25,000	75,000
Selected commodities: (1935)			
Brown coal	2,400	1,500	3,900
Coal	500	-	500
Petroleum	17,500	-	17,500
Lumber and Wood Products	-	-	-
Stone, Gravel, Sand	400	600	1,000
Iron Ore	-	-	-
Pig Iron	-	-	-
Semi-finished Iron goods	-	-	-
Other Iron goods	-	-	-
Ores other than Iron	1,800	-	1,800
Potash	-	-	-
Other Fertilizer	-	-	-
Wheat	3,800	17,300	21,000
Rye	900	-	900
Other cereals	5,100	100	5,200
Flour	200	-	200
Salt	-	-	-
Sugar	-	-	-

Table 83. RAIL-WATER TRANSSHIPMENT AT TORGAU
(metric tons)

	1937 Transshipments from	
Commodities:	Railroad to Waterway in tons	Waterway to Railroad in tons
Foodstuffs	346	10,678
Ores	-	4,479
Coal and Peat	3,870	-
Stone, Gravel, Sand, Cement	4,013	-
Other Mineral Raw Materials	225	-
Chemical Products (except fertilizer)	-	32
Wood and Wood Products	-	269
Metals and Metal Products	-	1,437
	8,454	16,895
TOTAL	25,349	

Table 84. PORT TRAFFIC AT HALLE
(metric tons)

	Receipts	Shipments	Total
All goods (1937)	210,287	50,484	360,771
All goods (1936)	157,000	123,000	280,000
Selected commodities: (1936)			
Brown coal	-	8,200	8,200
Coal	-	-	-
Petroleum	20,900	3,400	24,300
Lumber and Wood Products	7,400	200	7,600
Stone, Gravel, Sand	-	-	-
Iron Ore	-	-	-
Pig Iron	100	100	200
Semi-finished Iron goods	2,000	100	2,100
Other Iron goods			
Ores other than Iron	-	-	-
Potash	-	-	-
Other Fertilizer	-	1,300	1,300
Wheat	-	61,700	61,700
Rye	20,200	-	20,200
Other Cereals	9,500	3,000	12,500
Flour	2,200	1,800	4,000
Salt	-	3,900	3,900
Sugar	100	13,600	13,700

Table 85. RAIL-WATER TRANSSHIPMENT AT HALLE
(metric tons)

	1937 Transshipments from	
Commodities:	Railroads to Waterway in tons	Waterway to Railroad in tons
Foodstuffs	4,374	13,425
Petroleum and Products	2,763	5,282
Stone, Gravel, Sand, Cement	48	-
Other Mineral Raw Materials	2,984	518
Chemical Products (except Fertilizer)	1,156	2,276
Fertilizer	15	-
Leather and Textile Raw Materials	-	9,776
Wood and Wood Products	744	6,708
Ceramics and Glass Products	-	5
Metals and Metal Products	-	145
Vehicles and other Industrial Products	25	388
Household Furniture	20	102
	12,129	38,625
TOTAL	50,754	

E. Total Movement of Freight

The total freight movement for the year 1937 is shown in Table 86 and the Chart "Rail, Water, and Highway Traffic of the Central German Industrial Region." The figures indicate that outgoing was considerably higher than incoming freight. This applies, however, only to railroad and motor traffic, waterway traffice being higher inbound than outbound. It should, however, be noted that motor transport statistics include only those of the National Trucking Association (RKB) - no other long-distance and no short-distance movements.

F. Air Transportation

1. Airports.

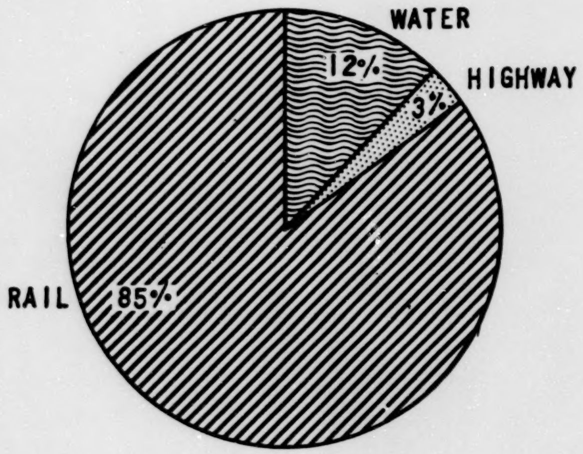
a. Military. The density of airfields in the Central Industrial Region is probably as great as anywhere on the Continent -- the only possible exception being the invasion coast along the English Channel. This is due largely to the war, and to Germany's military preparations during the 'thirties; comparatively few fields in this area have been developed from pre-war commercial or public airports.

Of some fifty operational or potentially operational airfields in the region under discussion, the great majority, thirty-four are fully equipped bases for medium bomber or fighter planes. Seven landing grounds, with fewer facilities, also accommodate these types of aircraft. There is only one airdrome at which the heaviest bombers are based in the area: it is Volkenrode, near Braunschweig. The remaining fields are classed, for military purposes, as emergency landing grounds.

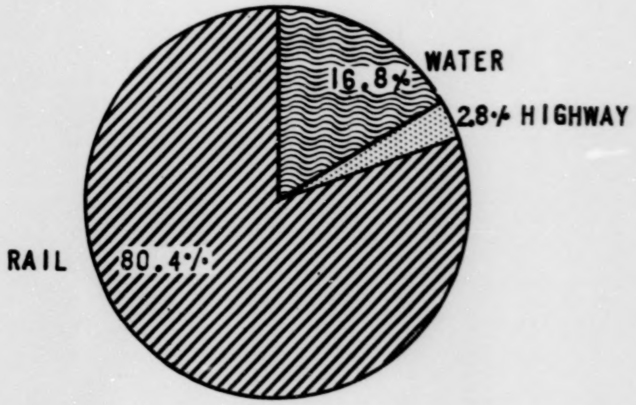
It is safe to say that, after the war, no town of over 25,000 population is this region would be more than twenty miles from an airport adequate for some sort of airline operations, if the present facilities continued to exist.

RAIL, WATER, AND HIGHWAY TRAFFIC of the CENTRAL GERMAN INDUSTRIAL REGION

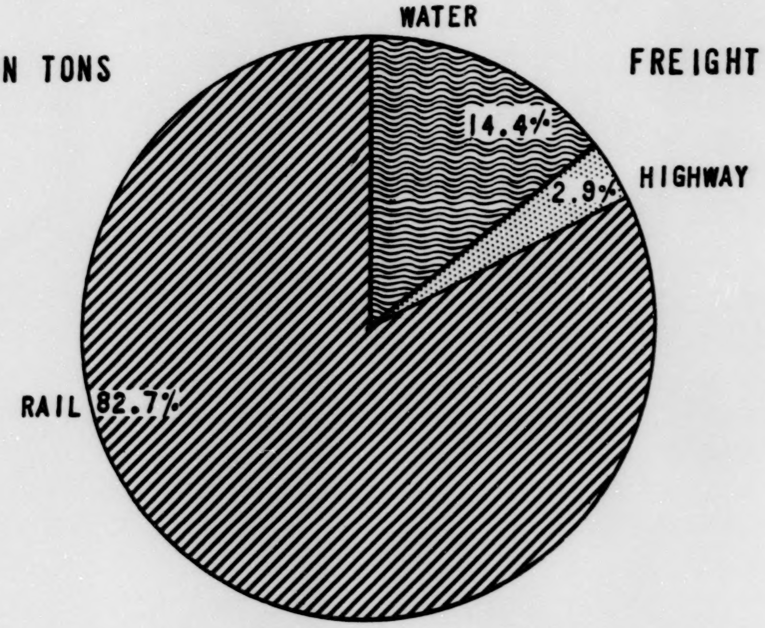
(1937)



FREIGHT SHIPPED, 33.3 MILLION TONS



FREIGHT RECEIVED, 30 MILLION TONS



TOTAL TRAFFIC, 63.3 MILLION TONS

Transit and intra-regional traffic not included. Metric tons.

Sources: *Die Güterbewegung auf Deutschen Eisenbahnen im Jahre 1937*, (Statistisches Reichsamt). *Die Binnenschiffahrt im Jahre 1937*, (Statistisches Reichsamt). *RKB Bericht*, 1938.

Table 86. TOTAL TONNAGE OF RAIL, WATER, AND HIGHWAY TRANSPORTATION OF ENTIRE REGION OF SPECIFIC COMMODITIES, 1937

(metric tons)

	RAIL		WATER	
	Shipped	Received	Shipped	Received
Brown coal	3,726,290	2,738,372	18,087	37
Brown coal briquetts	8,773,285	3,825,229	85,828	4,089
Brown coal cokes	898,528	702,086	2,387	0
Bituminous coal	105,424	4,532,075	77,752	1,949,718
Bituminous coal cokes	175,928	2,778,450	301,119	310,184
Wheat	120,596	45,907	12,081	53,896
Rye	70,595	71,309	52,933	75,240
Sugar beets	563,608	605,057	89,181	4,199
Raw sugar	182,340	212,215	70,401	135,771
Potash	482,778	156,716	618,435	1,085
Potash fertilizers	2,967,826	528,897	17,185	234
Gasoline	520,810	190,198	87,691	42,718
Nitrogen	1,364,089	440,377	5,228	21,935
Machines	242,069	252,666	13,528	3,356
Semi-finished iron and steel	495,414	532,259	513,308	3,838
Iron and manganese ore	809,979	150,684	131,799	110,009
Cement, mortar	1,165,789	773,874	11,898	2,441
Artificial stones, pipes, plates	720,806	846,809	143,774	85,733
Earth, gravel, stone	2,577,452	2,176,886	3,100	13,307
	25,963,790	21,560,066	2,255,715	2,818,510

TOTAL SHIPPED 28,219,505
TOTAL RECEIVED 24,378,576

The 5 most important districts where all commodities are SHIPPED to:

Land Sachsen	5,232,899	Hamburg	391,650	Land Sachsen	106,029
Brandenburg	2,253,556	Duisburg	398,974	Berlin	101,852
Nordbayern	1,537,778	Berlin	307,936	Ruhr	100,967
Leipzig	1,338,131	Bremen	265,869	Elbe ports	90,760
Berlin	1,149,712	Schleswig-Holstein	198,139	Westfalen	81,824

Table 86. Total Tonnage of rail, Water, and Highway Transportation of Entire Region on Specific Commodities, 1937 (continued)
(metric tons)

The 5 most important districts where all commodities are RECEIVED from:

Ruhr	5,907,799	Hamburg	1,662,323	Elbe ports	148,751
Land Sachsen	4,054,099	Dortmund-Ems Canal	1,082,835	Ruhr	146,621
Hessen-Nassau	1,237,838	Rhine-Herne Canal	379,087	North Rhine	58,464
Oppeln	1,132,002	Land Sachsen	206,206	Berlin	44,097
Westfalen	925,970	Oberschlesien	198,241	Brandenburg	35,550

Livestock shipped by rail only	Horses	Cattle	Calves	Sheep	Pigs	Shoats	Poultry
(number)	25,736	136,482	68,550	277,870	509,143	480,400	98,351
" received	45,125	174,380	45,651	81,380	228,066	582,946	72,020

SUMMARY OF TOTAL VOLUME OF TRAFFIC

	Rail	%	Water	%	Highway	%	Total	%
Shipped	28,322,214	85.2	4,050,777	12.2	869,336	2.6	33,242,327	100
Received	24,038,936	80.6	5,041,985	16.9	733,515	2.5	29,814,436	100
Total inter-regional	52,361,150	83.0	9,092,762	14.4	1,602,851	2.6	63,056,763	100

Local Traffic, Rail	39,497,394
Local Traffic, Water	247,964
Transit Traffic, Rail	12,000,000
Transit Traffic, Water	5,000,000
GRAND TOTAL	119,802,121

Most of these towns, and many smaller places, would be even closer to existing air facilities. But it is equally certain that many of the present fields -- particularly the elaborate military bases that are situated off potential air routes -- will be returned to cultivation during the first stages of Allied occupation.

b. Civil. It must be remembered that every airfield in Axis Europe is now completely under military control, including those used for the limited commercial operations now permitted. Hence the qualification "civil" applies to the pre-war situation. In 1938 there were seventeen airfields in the Central Industrial Region used for civil aviation: seven of them open to general traffic (Allgemeine Flughäfen) and ten reserved for special types of activity (Sonderflughäfen): aircraft testing, flight instruction, private flying, and the like. About half the airfields in all Germany were owned by municipalities, the other half by private enterprises in which the municipality was generally a share-holder.

The seventeen fields, with indications of their ownership, use, and the Air Office concerned with their control, are tabulated below: (DLH is an abbreviation for Deutsche Lufthansa, the national airline company).

Name	Owner	Use	Air Office
Braunschweig/ Broitzem	Corporation	Special. Was on DLH lines until completion of Waggum Airport in 1937	Hannover
Braunschweig/ Waggum	Corporation	General. On DLH lines	Hannover
Dessau	Junkers Aircraft Co.	Special	Dresden
Erfurt, North	Corporation	General. On DLH lines	Dresden
Gera	Corporation	Special	Dresden
Goslar	Town	Special	Münster/ Westf.
Halberstadt	Town	Special	Munster/ Westf.

Name	Owner	Use	Air Office
Halle-Leipzig (Schkeuditz)	Corporation	General. On DLH lines	Dresden
Halle/Nietleben	Corporation	Special	Dresden
Hildesheim	Town	Special	Hannover
Hof. a.d. Saale	Town	General	Nürenberg
Magdeburg/East	Corporation	Special	Berlin
Magdeburg/South	Corporation	General. On DLH lines	Berlin
Nordhausen	Town	Special	Dresden
Quedlinburg	Town	Special.	Münster/ Westf.
Schwarza a.d. Saale	Corporation	General	Dresden
Wernigerode	Town	General	Münster/ Westf.

2. Airline Operations.

a. Stations. Of the seventeen foregoing airports, only four were scheduled stations on the Deutsche Lufthansa network: Halle-Leipzig, Braunschweig/Waggum, Magdeburg/South, and Erfurt.

Halle-Leipzig was most important from the point of view of traffic, ranking fourth in all of Germany; Braunschweig/Waggum was the newest and hence the best equipped. Both were first-class airports, with control towers, heated hangars and workshops, meteorological, radio, and police offices, and facilities for night landings. Halle-Leipzig was in addition a customs and "sanitary" or quarantine airport. Magdeburg/South and Erfurt had fewer facilities and were not lighted airfields.

Although the figures are not entirely reliable, the following table indicates the relative importance of these airports by the numbers of arriving and departing aircraft in a single year:

Airport	1936	1937	1938	1939
Halle-Leipzig	10,081	10,420	8,510	6,266
Erfurt	1,732	1,868	1,042	704
Magdeburg	558	1,158	450	386
Braunschweig/Waggum (added 1937)...		816	948	992

It is notable that, while traffic fell off at most airports as war became imminent, the new airport at Braunschweig steadily increased in importance.

b. Routes. In addition to being a stop on the Berlin-Zürich and Berlin-Nürnberg routes, Halle-Leipzig had direct connections with Hannover, Amsterdam (it was the only German stop on the Holland-Dutch East Indies route), Dortmund, Köln, Frankfurt, Mannheim, Stuttgart, Budapest, and Dresden. Braunschweig and Magdeburg were the two stops on the Hannover-Halle-Leipzig line; and Braunschweig was also on a direct line to Berlin. Erfurt was a stop between Halle-Leipzig and Frankfurt. These, of course, are only through flights; connections could be made at termini for all the cities of the world. Halle-Leipzig was the only airport with which we are concerned that was on non-passenger post and freight routes: it was connected by these with Berlin, Dresden and Köln.

c. Traffic. It has not been possible to obtain figures for the small segments of airlines involved in the area under consideration, but a pre-war study indicates that passenger and mail traffic between Berlin and Halle-Leipzig was exceeded in Germany only by that between Nürnberg and München; freight traffic was greater between Berlin and Hannover. The Berlin-Halle-Leipzig route ranked fourth in passenger traffic on the entire continent: only London-Paris, London-Amsterdam, and Nürnberg-München, as noted above, has a greater flow of passengers.

The total freight carried on the airlines was utterly negligible compared to that carried by any other transportation system; in the last three years before the war it averaged under a thousand metric tons per year, including export, import, and internal trade. Another hundred-odd tons per year was added by joint air-rail transport

(Flug-Eisenbahnverkehr, usually abbreviated as Fleiverkehr). While the tonnage of goods transported by air decreased generally in Germany during these years, the proportion carried internally showed considerable development. Freight transported entirely by air increased from 6 percent of the total air freight in 1936 to 16.6 percent in 1939. Likewise the tonnage of Fleiverkehr in 1938 showed a 99 percent increase over that of 1937; the increase in 1939 over 1938 was 188 percent.

The types of freight carried by air were, as is to be expected, luxury goods and those requiring little space. Clothing, machine parts, films and optical instruments led in the export trade; flowers and foodstuffs, printed copy and printing plates were the principal goods imported by air express. Chemicals and dyes were other items well adapted to this form of transport.

d. Carriers. All of the foregoing traffic statistics apply principally to Deutsche Lufthansa, the German national airline, with the exception of the airport statistics, which in some cases include aircraft of foreign nationality. From 1935 on, under the political and financial support of the Nazi regime, Lufthansa enjoyed the monoply of German scheduled air services, internal and international.

In 1938 Lufthansa took over completely the field of unscheduled aviation by establishing a subsidiary, Hansa Flugdienst, with headquarters at Berlin, to take care of charter, emergency, instruction, and feeder flights throughout Germany. Under the new set-up, the number of such flights increased enormously in the short period remaining before the war. Of some 20,000 special flights accomplished with twenty-four planes during the last eight months of 1938, 4,000 were classified as instruction flights and 13,000 as charter trips. This reversal of the usual peacetime ratio of instruction to charter flights is interesting.

3. Air Administration.

a. Central. Since 1933 all branches of aeronautical activity in Germany have been highly centralized in the Reichsluftfahrtministerium (German Air Ministry). The Reichminister der Luftfahrt (Minister for Aviation) is also Commander-in-Chief of the Air Forces, and his principal secretary is Executive Director of Deutsche Lufthansa. In the field of civil aviation, the Air Ministry makes traffic and safety regulations, licenses general and special airports, supervises the weather bureau, airplane manufacture and aeronautical research. The licensing of airmen and of landing grounds - as opposed to airports - as well as the carrying out of regulations are delegated to regional representatives.

b. Regional. To carry out the duties of the Air Ministry, fourteen subordinate regional Luftämter (Air Offices) were set up by ordinance in 1934. The demarcation of the districts controlled by these offices does not depend on political boundaries, but results from consideration of expediency from the viewpoints of both flying and administrative simplification. There have been one or two changes in the location of these offices; in July 1939 there were fifteen. Five of them intersect the Central Industrial Region: Hannover, Münster/Westf., Nürnberg, Dresden, and Berlin. Rather more than half of the area, however, comes within the jurisdiction of the Dresden office.

The Air Offices in turn set up field offices of two kinds: airport managements (Flughafenleitungen) and flight-safety stations (Luftaufsichtswachen), radio and signalling stations outside the airports but along the airways. Each field office is directly responsible to the Air Office that established it.

APPENDICES

APPENDIX I

GENERATING STATIONS WITH INDIVIDUAL CAPACITIES OF 10,000 kw. AND OVER

Type:

T - Thermal
TH - Thermal and hydroelectric
Tb - Brown-coal-fired
Th - Hard-coal-fired
Tg - Gas-fired
H - Hydroelectric

Appendix I (continued)

NAME	LOCATION	TYPE	INSTALLED CAP. (kw)	REMARKS
AMMENDORF	5 mi. NW. of Merseburg	Tb.	15,000 (?)	Owned by Merseburger Überlandbahnen AG. Connected by medium-voltage lines to Leuna.
BITTERFELD	Between Wolfen and Bitterfeld; 20 mi. N. of Leipzig	Tb.	140,000	Owned by IG Farbenindustrie; supplies chemical industrial plant. 13 boilers; 7 turbo-generator sets made by Escher Wyss, AEG, and BBC; 4 large cooling towers. Connected to 110-kv.-lines from Golpa-Zschornewitz to Gross-Kayna and to Böhlen.
BLEICHERODE	17 mi. SW. of Nordhausen	Tb.	35,000	Owned by ESAG. Peak load station. Burns brown coal and briquettes. Boiler capacity in 1934 only sufficient for 14,000 kw. but plant believed recently extended.
BLEILOCH	60 mi. SW. of Leipzig, on Saale River	H.	40,000	Owned by Saaletalsperren AG, formerly known as AG Obere Saale. Part of Saale Hydro Scheme which includes Hohenwarte, Burgkhammer, and Eichicht. Pump-storage station between Bleiloch main reservoir and Burgkhammer compensating reservoir. Bleiloch reservoir; total capacity 215,000,000 tons, height of dam 215 feet length of dam 705 feet, maximum head 190 feet, minimum head 90 feet, average flow 470 cu.m./sec. Penstock: 2 pressure pipes dividing into 3 branches - 1 to each turbine and 1 to the pump.

Appendix I (continued)

NAME	LOCATION	TYPE	INSTALLED CAP. (kw)	REMARKS
BLEILOCH (cont.)				2 generating sets consisting of the following parts mounted on a common horizontal shaft: 2 Francis turbines, a double synchronous generator/motor, and a 2-speed pump. Indoor substation owned by Thüringenwerk AG Weimar and situated above flood level; 2 10/50/100-kv. transformers of 20/20/20 kw. capacity connected to generating station by 12 cables. 10-kv. connection to Burgkhammer. 50-kv. double-circuit line to Jena. Line to Probstzella. 100-kv. lines to Herlasgrün and Hof.
BRAUNSCHWEIG	Center of city of Braunschweig, 35 mi. E. of Hannover	Tb.	38,000	Owned by Stadtwerke Braunschweig. Power and heat supply plant; 8 boilers, 5 with additional pulverized-fuel firing. Generating sets: 1x13,500 kw., 1x10,000 kw., 2x4,200 kw. (all AEG), 1x6,000 kw. (BBC).
CÄSAR	20 mi. W. of Magdeburg	Tb.	30,000	Owned by Alkaliwerke Westeregeln. Also supplies Cäsar pit of Gewerkschaft Archibald. Output 1937: 51,000,000 kwh. Extended by 12,000 kw. 1939.
CONCORDIA	Near Nachterstedt, about 25 mi. SW. of Magdeburg	Tb.	70,000	Owned by A. Riebeck'sche Montanwerke AG, Halle. Plant supplies associated works and also ESAG. 7 turbo-generator sets installed made by BBC. Substation for 3 kv., 10.5 kv, and 100 kv. and 4 transformers for supply to ESAG.

Appendix I (continued)

NAME	LOCATION	TYPE	INSTALLED CAP. (kw.)	REMARKS
DEUBEN	22 mi. SW. of Leipzig	Tb.	48,000	Owned by A. Reibeck'sche Montanwerke AG. Generating sets include 2x15,000 kw. (1936 & 1938) made by AEG
ELBEKRAFTWERK	S. bank of Elbe R., 35 mi. N. of Leipzig at Vockerode	Tb.	175,000	Owned by Electrowerke AG, Berlin. Put into operation in 1939. Probably at least 5 turbo-generator sets of 35,000 kw. capacity; 2 turbines ordered from BBC in 1938. 110-kv. transmission line connects the station to Golpa-Zschornewitz.
ERFURT	13 mi. W. of Weimar	T.	44,000	Owned by Grosskraftwerk Erfurt AG. Burns briquettes, pulverized fuel and coke. Sets installed: 1x18,000 kw. (1932), 1x14,000 kw (1937), 3 smaller sets totalling 12,000 kw. (1924).
FALLERSLEBEN	Near village Fallersleben, 15 mi. NE. of Braunschweig.	Th.	63,000	Owned by Volkswagenwerk GmbH Fallersleben; part of the Volkswagenfabrik. Fuel delivered by canal or rail. Single boiler house estimated to contain 3/4,000,000 lbs./hr. boiler-plant capacity. One generating house, 200 x 85 ft. Medium-voltage line connects via Weferlingen to the important 220-kv. substation at Harbke between Braunschweig and Magdeburg.
GERA	35 mi. SE. of Weimar	Tb.	16,000 (?)	Owned by Kraftwerk und Strassenbahn Gera AG. Reserve station. 3 generating sets.

Appendix I (continued)

NAME	LOCATION	TYPE	INSTALLED CAP. (kw.)	REMARKS
GISPERSLEBEN	15 mi. W. of Weimar, 3 mi. NW. of Erfurt	T & H	22,000	Owned by the Kraftwerk Thüringen AG. Generating sets installed: 1x9,000 kw. (1937), 1x8,000 kw. SSW. Ljungström (1936), 3 totaling 5,000 kw. all steam turbines; 1x100-kw. water turbine. Switch house for 10 kv. and 50 kv.
GOLPA-ZSCHORNEWITZ	At Zschornewitz, 25 mi. N. of Leipzig	Tb.	440,000	Owned by Elektrowerke AG, Berlin. 2nd largest in Germany. There is an old plant and a new plant which was under construction in 1943. Supplies given to: Berlin, Mitteldeutsche Stickstoffwerke AG at Piesteritz, and to I.G. Farben at Bitterfeld. Also to the grid. Brown coal delivered from open-pit Golpa mine in chain hauled trucks of 20-ton capacity. 65 boilers made by Borsig and Steinmuller; 13 transformers; 16 turbogenerators or sets in the old plant, one large house in the new plant of 120,000 kw. capacity. 22 cooling towers in old station, back-pressure turbines in new. Has an indoor substation for 80 kv. and 110 kv. and an indoor 110-kv. switching station. There are 8 double-circuit 110-kv. lines; one 80 kv. line to Piesteritz.
GRÖBERS	7 mi. NE. of Merseburg	Tb.	16,000	Owned by Chemische Fabrik Buckau. Output 1934: 6,000,000 kwh. Generating sets include one of 5,000 kw. made by BBC. Feeds ESAG.

Appendix I (continued)

NAME	LOCATION	TYPE	INSTALLED CAP. (kw.)	REMARKS
GROSS-ILSEDE	17 mi. SE. of Hannover	Tg.	30,000	Owned by Ilseder Hütte. Fuel: blast furnace gas. 20 gas engines installed. 2 transformers for additional current from grid.
GROSS-KAYNA	On the brown coal fields. 20 mi. W. of Leipzig	Tb.	56,000	Owned by ESAG, Halle. Fuel carried by conveyor from the mine to the boiler house. Boilers for grate and pulverized-coal firing supplied by HANOMAG and by Babcock and Wilcox. 4 cooling towers. 1 indoor substation for 100 kv., 50 kv., and lower voltage. Four 50-kv. lines connect the station with Kulkwitz, Freyburg, Mücheln, and Stöbnitz. 110-kv. lines connect with Bleicherode, Förderstedt, Förderstedt via Nachterstedt, and Golpa-Zschornewitz.
HALLE	15 mi. N. of Merseburg.	Tb.	42,000	Owned by ESAG. Supplies small independent area in and around city. Sales in 1937: 55,300,000 kwh. Planned capacity 80,000 kw. Only half built in 1938. Generating sets installed 1930: 1x16,000 kw. (SSW); 1x14,000 kw. (turbine by Krupp, alternator by AEG); 1x6,000 kw. (MAN); 1x6,000 kw. (turbine by Krupp, alternator by SSW).
HALLENDORF	10 mi. SW. of Braunschweig	Tg.	290,000	Owned by Reichswerke Hermann Göring. Feeds the steel works and the grid by an 100-kv. line to Lehrte. Designed for remote control of plant. Fuel consists of blast-furnace gas, coke-oven gas and coal. 2 boiler houses each with 6 boilers and 2 chimneys. Duplicate generator houses with total of 8 sets, made by AEG. 4 cooling towers supplied by 12-mi. pipe from Börssum. Transformer station, switching station, and control house a mile to NW.

Appendix I (continued)

NAME	LOCATION	TYPE	INSTALLED CAP. (kw.)	REMARKS
HARBKE	27 mi. W. of Magdeburg, 3 mi. SE. of Helmstedt	Tb.	136,000	Owned by Braunschweigische Kohlenbergwerke AG, Helmstedt. Brown coal by rail in 30-ton trucks from nearby mines. 3 boiler houses, at least 17 boilers, 6 chimneys. 4 generating houses, 10 sets. 6 cooling towers. Indoor substation for 15 and 50 kv.; open-air substation for 110 kv. and 220 kv.; substation 1.5 mi. to W. for 110 kv. and 220 kv. 50-kv. lines to Weferlingen, Wellen, Emmenstedt, Diesdorf, Treue, Schöningen, Ohlendorf, and Oker. 220-kv. double-circuit line to Lehrte, Harbke substation, and to Diesdorf. 110-kv. line to Krottorf.
HATTORF	19 mi. NW of Halle	T.	15,000 (?)	Owned by Kaliwerke Aschersleben AG. Generating sets include 2x5,000 kw.
HOLZWEISSIG	16 mi. NW. of Halle	Tb.	38,000	Owned by Grube Leopold AG. New generating sets installed: 1x14,000 kw. (1931), 1x24,000 kw. (1938). 13,000 kw of old plant, installed prior to 1931, believed dismantled.
JENA	11 mi. SE of Weimar	T.	24,000 (?)	Owned by Carl Zeiss. Generating sets include 2x4,000 kw. (1929 & 1938), 1x5,000 kw. (1931), and 1x3,000 kw. All turbines by B.B.Co. Generators of 4,000-kw. sets by AEG. Last set was for 3,000 rpm., 550 lbs./sq. in. pressure, 750°F. temperature, 10.5 kv., 50 cycles and supplied steam at 40 lbs./sq.in. pressure to the works.

Appendix I (continued)

NAME	LOCATION	TYPE	INSTALLED CAP. (kw.)	REMARKS
KOCHHÜTTE	19 mi. W. of Halle	Tb.	20,000	Onwed by Mansfeldscher Kupferschieferbergbau AG, Eisleben. 11 boilers, 4 generating sets.
KRÜGHÜTTE	18 mi. W. of Halle	Tb.	24,000 (?)	Owned by Mansfeldscher Kupferschieferbergbau AG, Eisleben. Extended by 1x16,000 kw. generating set 1936. 3 other sets installed.
KULKWITZ	On brown coal fields 6 mi. SW. of Leipzig	Tb.	105,000	Owned by Landkraftwerke Leipzig AG in Kulkwitz. Fuel obtained by conveyor plant from "Carole" and "Konig" mines owned by the plant. 20 boilers in 1937. 7 turbo-generator sets, made by AEG. 1938: electricity supplied at 10 kv. and 30 kv. by underground cables and transmission lines chiefly to local consumers. Now probably also to nearby industrial works and to the high-voltage grid of ASW.
KUPFERHAMMER	22 mi. NW. of Halle	Tb.	15,000 (?)	Owned by Mansfeldscher Kupferschieferbergbau AG, Eisleben. 9 boilers. 1 generating set.
LAUCHHAMMER	30 mi. N. of Dresden	Tb.	98,000	Owned by Mitteldeutsche Stahlwerke AG. Supplies company steel works at Lauchhammer, Riesa, and Gröditz. Fuel conveyed by electrified mine railway from Koyne pit. At least 3 boiler houses and 2 brick chimneys, 35 boilers or more. 8 generating sets made by AEG and MAN. Main switching at 100 kv., each generator being connected to a generator-transformer. 6 cooling towers in 1922. An indoor substation has transformers for

Appendix I (continued)

NAME	LOCATION	TYPE	INSTALLED CAP. (kw.)	REMARKS
LAUCHHAMMER (continued)				15/100 kv. A 15-kv. double-circuit line 6 miles long connects to the Koyne pit. A 110-kv. double-circuit line to Gröditz and Riesa; probably also to Marie-Anne Pit and to Ruhland-Schwarzheide.
LEUNA	Near Merseburg, 15 mi. W. of Leipzig	Tb.	150,000	Owned by the I.G. Farbenindustrie; is a part of the Leunawerks. Fuel by rail from nearby mines. 2 boiler houses with 2 tall chimneys. 1 generator house. 1 small cooling tower; back-pressure turbines probably supply steam to associated works. Medium-voltage lines to works and to Ammendorf, Mücheln, and Poserna. Indoor substation for 2 high-voltage lines, probably to Gross-Kayna and Schkopau.
LUTZKENDORF-MÜCHELN	8 mi. SW of Merseburg	Tb.	36,000	Owned by Mitteldeutsche Treibstoff und Olwerke, AG. (synthetic oil).
MAGDEBURG	W. of Magdeburg	Tb.	16,000	Owned by Magdeburger Versorgungsbetriebe AG. Reserve station closed down in 1933. Generating sets include 1x5,000 kw. installed 1928. May have been re-opened.
MARIE-ANNE (MUCKENBERG)	Near Muckenberg, 30 mi. N. of Dresden	Tb.	91,000	Owned by the Braunkohlen und Briquett-industrie AG. (Bubiag), Muckenberg. Situated on open-pit brown coal mine. At least 4 turbo-generator sets; the last 3 made by AEG, one with back-pressure turbine.

Appendix I (continued)

NAME	LOCATION	TYPE	INSTALLED CAP. (kw.)	REMARKS
MERKERS	14 mi. SW. of Eisenach	T.	36,000 (?)	Owned by Kaliwerk Wintershall AG. Generating plant installed includes 1x9,000-kw. set installed 1936 and 1x15,000 kw-set installed 1938, both made by AEG
MIKRAMAG	N. of Magdeburg on a branch to the Mittelland Canal	Th.	130,000 (at least)	Owned by Mitteldeutsches Kraftwerk Magdeburg AG. (MIKRAMAG), Magdeburg. Supplies nearby plants and city of Magdeburg. Upper Silesian high-quality hard coal is delivered by barges and railway. 1 boiler house, 2 chimneys, at least 8 boilers. 5 turbo-generator sets running at 3,000 rpm., supplied by AEG. Cooling water from canal. Supplies by 10-kv. underground cables to Magdeburg and industrial plants. One 110-kv. transmission line to Buckau which connects to Diesdorf.
MULDENSTEIN	3 mi. NE. of Bitterfeld	Tb.	81,000 (?)	Owned by the German National Railway. Power exclusively for railway traction. Single-phase AC at 16 2/3 cycles. Ruths steam-accumulator plant in the station. Raw brown coal used and possibly coke from nearby low-temperature carbonization plant. 10 turbo-generator sets made by AEG. and SSW. 60-kv. single-phase lines go to Wahren, Marke, Gommern, and Köthen railway substations.

Appendix I (continued)

NAME	LOCATION	TYPE	INSTALLED CAP. (kw.)	REMARKS
MULDENSTEIN	2 mi. NW. of Muldenstein	T.	15,000 (?)	Owned by Papierfabrik Muldenstein. Plant installed includes 1x8,000-kw. and 1x3,000 kw.-generating sets, both by BBC.
OSTERNIENBURG	8 mi. W. of Dessau	T.	19,000 (?)	Owned by Deutsche Solvay Werke AG (soda works). Sets installed include 3 turbo-generators of 8,000, 4,000 and 1,000 kw.
PIESTERITZ	12 mi. NE. of Dessau	Tb.	40,000 (?)	Owned by Mitteldeutsche Stickstoffwerke AG. Station of calcium-carbide/cyanimide plant at Piesteritz.
PLESSA	25 mi. N. of Dresden	Tb.	36,000	Owned by Elektrizitätsverband Gröba. Supplies Plessa and local industries, brown coal mine and briquette factory. 3 turbo-generators of 16,000, 10,000 and 8,000 kw. 1936: 217,000,000 kwh.
RODLEBEN	4 mi. N. of Dessau	T.	29,000	Owned by Deutsche Hydrierwerke AG (synthetic oil).
SCHKOPAU	Near Merseburg, 20 mi. W. of Leipzig	Tb.	150,000	Owned by Bunawerke GmbH. 2 generating stations forming part of a synthetic rubber plant. New station still under construction in 1942. Most of power to associated plant. Coal delivered by rail. Boiler house has 6 boilers of 175,000 lbs./hr. capacity each, 3 chimneys. New boiler house has 3 chimneys, probably 6 boilers. 2 cooling towers. Sub-station has 3 transformers, 6 open-air gas-blast switches, 2 overhead transmission lines, probably to Gross-Kayna and Leuna.

Appendix I (continued)

NAME	LOCATION	TYPE	INSTALLED CAP. (kw.)	REMARKS
THEISSEN	34 mi. E. of Weimar	Tb.	33,000	Owned by A. Riebeck'sche Montanwerke AG, Halle, 3 generating sets.
TREUE	S. of Harbke, 25 mi. W. of Magdeburg	Tb.	17,000	Owned by Braunschweigische Kohlenbergwerke AG. Old boilers replaced in 1929 by modern high-pressure installations. 1 back-pressure turbo-generator. Power mainly for own mine.
WOLFEN	Between Wolfen and Bitterfeld, 20 mi. N. of Leipzig	Tb.	98,000	Owned by I.G. Farbenindustrie. Supplies chemical industrial plant. 14 boilers; 6 generator sets made by AEG. and BBC.; no cooling towers, probably back-pressure turbines. Connected to the 110-kv. lines from Golpa-Zschornewitz to Böhlen and from Golpa-Zschornewitz to Gross-Kayna.
ZEITZ TROGLITZ	20 mi. SW. of Leipzig	Tb.	175,000	Owned by Braunkohle Benzin AG. Part of the synthetic oil plant, probably supplies both steam and electricity. Coal by rail from near by mines. Single boiler house, 2 tall chimneys; single generator house; 2 cooling towers. Indoor substation. 2 110-kv. lines connect to Jena and Böhlen. 1 medium-voltage line connects to Langenberg.

Appendix II. ELECTRIC CURRENT CHARACTERISTICS OF THE LARGER TOWNS WITHIN THE CENTRAL INDUSTRIAL REGION

Note: All alternating current is 3-phase, 50-cycle.

Name	Current	Voltage
ANHALT		
Ballenstedt	DC	2x110
Coswig	DC	2x110
Dessau	AC	380/220
	AC	220/127
	DC	2x110
Gernroda	DC	2x220
Hecklingen	AC	380/220
	AC	210/125
Hoym	AC	380/220
Köthen	AC	380/220
	DC	2x220
BRAUNSCHWEIG		
Blankenburg	AC	380/220
	DC	2x110
Braunschweig	AC	380/220
	DC	2x220
Greene	AC	380/220
	AC	220/125
Bad Harzburg	DC	2x110
Helmstedt	AC	380/220
	AC	220/127
	AC	3x220
Hessen	DC	2x120
Langelsheim	AC	380/220
	DC	2x220
Schöningen	AC	380/220
	AC	220/127
	AC	3x220
Seesen	AC	380/220
Wolfenbüttel	DC	2x220
HANNOVER		
Alfeld	DC	2x220
Altenau	AC	380/220
	AC	220/127
	DC	2x110
Bockenem	AC	380/220
Burgdorf	AC	380/220
	DC	2x120
Clausthal-Zellerfeld	DC	2x220
Dudersstadt	DC	2x220
Echte	DC	2x110
Einbeck	DC	2x110
Elbingerode	AC	380/220
Elze	DC	2x120
Goslar	AC	380/220
	DC	2x220
Gronau	DC	2x220
	AC	380/220
	AC	210/125
Gross-Ilsede	AC	380/220

Name	Current	Voltage
HANNOVER (cont'd)		
	AC	3x220
	DC	110
Hildesheim	DC	2x220
Horneburg	AC	380/220
Lamspringe	AC	380/220
	DC	2x220
Lautenthal	DC	220
Bad Lauterberg	DC	2x120
Nienburg	AC	380/220
Northeim	AC	380/220
Oldendorf	DC	2x220
Osterode	AC	380/220
	AC	220/127
	DC	2x110
Peine	AC	380/220
Ringelheim	AC	380/220
	AC	220/127
	AC	3x220
Wildemann	AC	380/220
PROVINZ SACHSEN		
Aken	DC	2x110
Ammendorf	AC	3x380/220
Amsdorf	AC	380/220
	AC	3x220
Artern	DC	2x110
Aschersleben	AC	380/220
	DC	2x240
	DC	1x500
Badersleben	AC	380/220
Benneckenstein	DC	220
Bitterfeld	AC	380/220
	AC	220/110
Bleicherode	AC	380/220
Burg	AC	380/220
	AC	220/125
Calbe	AC	220/110
Dedeleben	DC	220
	DC	110
Derenburg	AC	380/220
	AC	3x220
Egeln	AC	220/125
Eisleben	AC	220/120
	AC	210/120
Ellrich	DC	440
	DC	220
Erfurt	AC	3x220
Ermsleben	AC	380/220
Falkenburg	AC	380/220
	AC	3x220
Gerbstedt	AC	220/130
Gispersleben	AC	380/220
	AC	220/127
	DC	2x220
Gommern	AC	380/220
	AC	3x220
Grafenheinchen	AC	380/220

Name	Current	Voltage
PROVINZ SACHSEN (cont'd)		
Gross-Kayna	AC	380/220/110
	AC	380/220
	AC	3x220
Halberstadt	AC	380/220
	DC	2x220
Halle	AC	380/220
	AC	3x220
Heiligenstadt	DC	440
	DC	220
Heldrungen	AC	380/220
Heringen	AC	380/220
Holzweissig	AC	380/220
	DC	220
Ilsenburg	DC	2x220
Judenburg	AC	380/220
Kelbra	AC	220/110
Kemberg	AC	210/120
Kindelbrück	DC	220
	DC	110
Kochhütte	AC	220/120
	AC	210/120
Kolleda	AC	380/220
Bad Kösen	AC	220/127
Krughütte	AC	220/120
	AC	210/120
Kupferhammerhütte	AC	220/120
	AC	210/120
Langensalza	DC	220
	DC	110
Lauchhammer	AC	220/127
Loburg	DC	440
	DC	220
Magdeburg	AC	380/220
	AC	220/125
	AC	3x220
	AC	3x125
Mansfeld	AC	220/120
	AC	210/120
Meisdorf	DC	125
Merseburg	AC	220/127
Mühlhausen	AC	210/120
	AC	380/220
	DC	2x115
Nachterstedt	DC	440
	DC	220
Naumburg	AC	380/220
	DC	2x220
Neuhaldensleben	DC	2x110
Neumark	AC	500/380/220
Nordhausen	AC	380/220
	DC	2x220
Obisfelde	DC	2x220
Oschersleben	AC	380/220
	DC	440
	DC	220
Osterwick	DC	440
	DC	220
Plessa	DC	3x220
Quedlinburg	AC	220/110
	DC	2x220

Name	Current	Voltage
PROVINZ SACHSEN (cont'd)		
Querfurt	AC	220/125
	DC	440
	DC	220
Roszleben	DC	440
	DC	220
Bad Salzelman	AC	220/125
Schkeuditz	AC	380/220
	DC	2x220
Schkopau	AC	220
	DC	440
	DC	220
Schönebeck	AC	210/120
	AC	380/220
	DC	2x220
Schraplau	AC	220/127
Seehausen	DC	440
	DC	220
	DC	110
Sömmerda	DC	230
Stassfurt	AC	380/220
	AC	110
	DC	2x220
Stassberg	DC	220
Thale	DC	2x200
	DC	2x110
Thamsbrück	DC	220
Theissen	AC	380/220
	AC	3x220
Torgau	AC	380/220
	DC	2x220
Unseburg	AC	380/220
Völpke	AC	220
Wanzleben	AC	220/120
Weferlingen	AC	380/220
	AC	3x220
Wernigerode	AC	380/220
Wettin	AC	380/220
	AC	3x220
Wiehe	AC	380/220
Wittenberg	AC	380/220
	AC	3x220
	AC	130
	DC	2x220
Worbis	AC	380/220
Zeitz	AC	380/220
	AC	3x110
	DC	440
	DC	220

Name	Current	Voltage
PROVINC SACHSEN (cont'd)		
Ziegenrück	AC	380/220
	AC	220/127
	AC	220
	DC	2x220
	DC	2x110
	DC	550
Zschornewitz	AC	380/220
	AC	3x220
	AC	220/125
	DC	2x220
THÜRINGEN		
Allstedt	AC	380/220
Apolda	AC	380/220
	AC	500
	AC	120
	DC	2x220
Arnstadt	AC	380/220
	DC	2x120
Auma	AC	380/220
	AC	210/120
Berka	AC	220/127
	DC	220
Burgau	AC	380/220
	AC	220/127
	AC	220
	DC	2x220
	DC	2x110
	DC	550
Camburg	AC	380/220
	AC	3x220
Creuzburg	AC	220/130
Eisenach	AC	380/220
	AC	210/120
	DC	220
	DC	2x115
	DC	110
Eisenberg	AC	380/220
Gera	AC	210/120
	DC	2x110
	DC	550
	DC	110
Gotha	AC	380/220
	AC	220/125
	DC	2x210
	DC	600
Jena	AC	380/220
	AC	220/127
	AC	220
	DC	2x220
	DC	2x110
	DC	550
Krainichfeld	AC	380/220
Marksuhl	AC	380/220
Mihla	AC	220/110
Pössneck	AC	380/220
	AC	220/120

Probstzella	AC	380/220
	AC	220/127
Schleiz	AC	220
Schlotheim	AC	380/220
Schmölln	AC	380/220
Sondershausen	AC	380/220
	DC	440
	DC	220
Steudnitz	DC	440
	DC	220
Bad Sulza	AC	220
Themar	AC	380/220
Weimar	AC	380/220
	DC	2x220

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APPENDIX III. UTILIZATION OF LAND AND DENSITY OF POPULATION IN THE CENTRAL GERMAN URBAN AREAS - 1937 1/

	Braunschweig	Dessau	Erfurt	Gera	Halberstadt	Halle	Jena	Magdeburg	Weimar
1. Total Administrative Area 2/	7561 100	7103 100	4864 100	4773 100	6139 100	4892 100	4718 100	12896 100	3770 100
2. Built Up Area (Houses, homes, gardens, etc.)	998 13.2	715 10.1	812 16.7	426 8.9	222 3.6	1190* 23.9*	1305 6.5	1788 13.9	85 2.3
3. Streets, Roads, Squares, Railroads	977 12.9	414 5.8	645 13.3	465 9.8	361 5.9	437 8.8	301 6.4	904 7.0	298 7.7
4. Total Built Up Area (2 and 3 above)	1975 26.1	1129 15.9	1457 30.0	891 18.7	583 9.5	1627 32.7	606 12.9	2692 20.9	375 10.0
5. Open Land									
a. Municipal parks and playgrounds	186 2.5	280 3.9	74 1.5	66 1.4	15 0.2	140 2.8	19 0.4	687 5.3	67 1.8
b. Municipal playgrounds and athletic grounds	194 2.6	351 4.9	30 0.6	33 0.7	17 0.3	90 1.8	36 0.8	155 1.2	11 0.3
c. Cemeteries	63 0.8	included in 5a	58 1.2	21 0.4	21 0.3	84 1.7	18 0.4	111 0.9	22 0.6
6. Total Population (1939) in 1000	196	119	166	833	57	220	71	337	66
7. Density of Population per HA of Built Up Area (2 above)	196.4	166.4	204.4	194.8	256.7	184.8	232.7	188.3	776.9

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APPENDIX III (CONT'D) UTILIZATION OF LAND AND DENSITY OF POPULATION IN THE CENTRAL GERMAN URBAN AREAS - 1937 1/

	Braunschweig	Dessau	Erfurt	Gera	Halberstadt	Halle	Jena	Magdeburg	Weimar
8. Density of Population per HA of Total Built Up Area (4 on preceding page)	99.2	105.4	113.2	92	97. 7	135.2	117.2	125.1	176.11
9. Agricultural Areas - Farmland	3099 41.0	2967 41.8	1630 33.5	1962 41.1	4244 69.1	1163 23.3	1543 32.7	7193 55.7	2376 63.0
10. Gardenland	710 9.4	624 8.8	331 6.8	379 8.0	353 5.8	214 4.3	286 6.1	included in 9 above	479 12.7
11. Forest (Native and Cultivated)	191 2.5	1087 15.3	609 12.5	1299 27.2	416 6.8	659 13.2	1254 26.5	483 3.7	306 8.1
12. Hydrography	185 2.4	467 6.6	55.5 1.1	54 1.1	24 0.4	102 2.1	39 0.8	794 6.2	35 0.9
13. Other Areas	958 12.7	198 2.8	620 12.8	68 1.4	466 7.6	903 18.1	917 19.4	781 6.1	99 2.6

1/ No data available for Gotha and Eisenach.
2/ Units of area given in hectares. If conversion is necessary: Hectares x 2.471 = Acres
* - Includes housegardens

APPENDIX IV. ROAD SURFACES WITHIN URBAN AREAS IN CENTRAL GERMANY - 13 MARCH 1937.

City	Ordinary Macadam	Tar or Asphalt Penetration cover	Strew Surface Treated Macadam	Tar or Asphalt Concrete	Mortar Macadam	Old Stone Setts	Small Stone Setts	Artificial Stone Setts	Cement Concrete	Wood Block Paving	Total km.	Total in Ar (100 sq. meters equals 1 ar)
Braunschweig	69.3	1.4	6.0	17.0	16.6	-	90.9	-	-	0.1	201.3	16,541.7
Dessau	64.3	-	-	-	27.8	11.6	75.0	3.6	1.3	0.1	183.7	13,052.1
Eisenach	-	-	-	-	-	-	-	-	-	-	-	-
Erfurt	71.8	14.0	-	5.6	8.6	-	78.2	8.7	1.2	0.2	187.7	14,514.0
Gera	108.7	10.4	-	5.2	-	4.9	38.3	7.0	-	0.1	174.6	13,177.6
Gotha	-	--	-	-	-	-	-	-	-	-	-	-
Halberatadt	4.1	-	-	3.3	-	2.0	49.6	6.7	0.5	0.1	66.3	5,718.5
Halle	20.1	12.7	21.3	26.5	-	25.0	126.7	0.2	3.2	1.6	237.2	16,950.4
Jena	151.7	6.3	3.1	1.7	10.4	-	41.8	-	-	-	214.9	13,583.8
Magdeburg	47.7	-	-	4.5	-	107.8	153.1	9.0	-	0.2	322.3	23,828.9
Weimar	136.8	5.3	8.8	2.6	2.1	0.1	21.6	6.7	-	-	177.3	-

APPENDIX V. URBAN VEHICLES IN CENTRAL GERMANY

	Urban Bus Statistics for Central Germany - 1936				Urban Vehicles in Central Germany, July, 1938							
	Length of line	No. of passengers in thousands	Operating Revenues 1,000 RM	Operating Expenses 1,000 RM	No. of Busses	No. of Cars	No. of Trucks	Firetrucks	Street cleaning apparatus	Others	Motorcycles	Tractors
Braunschweig	22(km)	1,963	310	293	112	5,303	1,638	9	14	43	4,114	270
Dessau	85.4	1,462	447	412	46	2,532	857	15	5	22	2,345	59
Eisenach	-	-	-	-	15	1,439	307	12	1	88	657	26
Erfurt	-	-	-	-	36	4,898	1,273	11	15	41	2,864	139
Gera	4.1	335	64	62	24	1,933	615	5	1	23	1,411	26
Gotha	-	-	-	-	12	1,343	293	9	7	12	797	18
Halle	2.8	544	88	64	30	5,531	1,932	12	29	54	3,000	146
Halberstadt	2.5	52	4	11	8	1,314	372	6	5	13	857	39
Jena	-	-	-	-	29	1,651	328	7	2	17	1,730	17
Magdeburg[1]	11.1	1,647	185	190	443	8,422	2,447	28	24	49	4,547	316
Weimar [2]	-	-	-	-	24	1,937	484	7	2	28	1,279	31

1-Figures for 1937 show four lines operating, 17 km. lenth; with four busses in use, seating capacity 128.

2-No statistics available. Streetcar enterprise abandoned 30,June, 1937 and replaced by bus line.

Appendix VI. GARAGES IN URBAN AREAS IN CENTRAL GERMANY - 1939

BRAUNSCHWEIG-

Bahnhofs-Garage, Loose, O., Wallstr. 10/11
Bonewald, W., Frankfurter Str. 277
Brehm, Friedrich, Kuhstr. 17
Central Garage, Jodutenstr. 6
Düerkop, Ww., Altewiekring 6
Garagenhof Braunschweig Reick & Co., Adolf-Hitler-Platz 2
Heinze, Auguststr. 10
Hilleke, Hch., Karlstr. 75
Hilpert, G., Hedwigstr. 8
Hohetor-Garagen und Automobilvetrieb Gustav Ledderboge, Helmstedter Str. 57
Homilius, K., Campestr. 27-30
Jänicke, Herb., Bankplatz 2
Lange, Paul, Goslarsche Str. 72
Nussberggaragen Lüddeke & Diederich, Nussbergstr. 49
Peters, K., Hopfengarten 10
Schönberg, Otto, Wendenstr. 62
Schönstedt, H., Hamburger Str. 24
Sondermann, A., Husarenstr. 33/34
Steckhan, H., Echternstr. 48
Steinweggaragen, Steinweg 11
Stieghan, Fr., Karlstr. 48
Stieghan, Fr., Madamenweg 176
Suder, H., Karlstr. 76
Thöne, H., Kastanienalle 28
Winter & Co., Friedrich, Eiermarkt 3

DESSAU-

Puschert, Wilhelm, Haideburger Str. 247
Schulze, Fritz, Elisabethstr. 15/16

EISENACH-

Cwienk & Fromm, Mühlhäuserstr. 5 (repairs)
Fleischauer, H. W.
Grossgarage Modern, Heinrich Albert
Grossgarage Eisenach, Hermann Drewes
Heusing, Otto
Nottmeier, Fr.
Stichling, Lydia
Wippig, E.

ERFURT-

Bahnhofs-Garagen Erfurt, Ingenieur Otto Teiwes, Am Bahnhofsplatz 3-5
Bauer, Kurt., Reparatur-Werkstätte, Bauernatrasse 23 (Auto repair)
Domhof-Garagen (Gebr. Reisner), Mainzerhofstr. 10
Günther, Karl, Müfflingstr. 33
Merten, O., Moltkestr. 44
Meye, Wwe. Marta, Mühlhäuserstr. 88
Michaelis-Garagen, Heinrich Burckhard, Michaelisstr. 27
Mohag Motor-Handelsgesellschaft, Edwin & Arno Hoff, Rosengasse 6
Quasebarthausen., Fr., Skalitzer Str. 75
Radowitz-Grossgarage, Karl Konkiel, Radowitzstr. 19/20
Ringgaragen (P. Lugenheim), Krämpferring 29
Tivoli-Garagen (Frieda Hobrack), Göbenstr. 3

Appendix VI (continued)

GERA-

Hesse, Franz, Kaiser-Wilhelm-Str. 30
Jäger-Garagen Alfred Jäger, Friedricistr. 2
Pohlan, Hermann, Laasener Str. 22/24

GOTHA-

Albrecht, Hans
Breithaupt, Alwin
Mehlig-Garagen, Gebr.
Reichenbach, Carl
Schodert. Aug.
Thüringer Automobilhaus, Oskar Büchel, Gothaerstr. 76-80 (repair)
Volk, Emmy

HALBERSTADT-

"Kraftfahrt" Einstellhallen für Kraftfahrzfuge Elfriede Stein
W. Thiemann & Sohn, Gerberstr. Nr. 5-6

HALLE-

Brandes, Ewald, Reideburger Str. 25
Burggarage, Burgstr. 33
Ehrhardt, Willy, Langestr. 8
Eisentraut, O., Delitzscher Str. 38
Garagen Am Hallmarkt, Spitze Nr. 19-21
Garage Centrum, Ankerstr. 3
Garagenbetrieb Am Markt Friedr. Wilh. Helbig, Kom.-Ges. Gr. Nilolaistr. 6
Grossgarage Sud, Kurt Kohler & Co. (garage and repair)
Junemann & Co., Königstr. 20 (repair)
Kraushaar, Ferd, Marienstr. 24 (repair)
Kresse, Max, Pfännerhöhe Nr. 71-72
Porstendorfer. Otto. Berliner Str. 10/11
Reil-Grossgarage Inhager Ilse Förster, Yorkstr. 74
Tutenberg-Garage
Vollrath, Anna, Merseburger Str. 29
Wachenfeld, Walther, Berliner Str. 10/11

JENA-

Auto-Pätzold, Löbdergraben 24
Auto-Zentral Garagen, Wilhelm Sessler-Förschner, Alb .
Grossgarage, Roter Hirsch

MAGDEBURG-

Autoheim Westgaragen Waldemar Schilling, Olvenstedter Chaussee 4
Autohof Gebrüder Knopf, Rogätzerstr. 13-17
Becker, Theodor., Lessingstr. 61 bis 13
Belger, Gust., Rogätzer Str. 13-17
Busse, H., Rothenseerstr. 100
Christian, Peter, Halberstädter Str. 3
Dom-Garage, Fürstenufer 24
Domroes, K., Gutenbergstr. 11
Engelbrecht, H., Blauebeilstr. 6

Appendix VI (continued)

Garagen-Buckau, Bleckenburgstr.
Garagenhof Herman Hohenstein, Olvenstedter Str. 53
Garagenhof Jordanstr., Jordanstr. 4
Garagenhof Wilhelmstadt, Gr. Diesdorfer Str. 29
Garagen "Stadt Köln", Schlageterplatz
Garagen Süd, Leipziger Str. 14
Georgi, P., Spielgartenstr. 36
Grossgarage Elbe, Turmschanzenstr.
Gross-Garage "Magdeburg", Lorenzweg 12
Gross-Garage Gustav Stieger, Eifelstr. 5
Grossgaragen Südwest Magdeburg Dauer & Co., Konigstr. 28
Hopstock, Rich., Prälatenstr. 33
Jacobs, E., Santorstr. 46
Kampe, Klara, Lüneburger Str. 10
Schlodhauer. Gebr., Artilleriestr. 13/14
Senft, J., Endelstr. 1a
Sayfarth, H., Schrotestr. 22
Stern, Buckauer Tor 1
Süd-Garagen, Leipziger Str. 14
Trumpf-Garagen, Lorenzweg 10
Wische, F., Schützenstr.
Wolff, Paul, Spielgartenstr. 34

WEIMAR-

Bischoff, Hugo
Engel, Ernst
Keil Grossgaragen, Max Keil
Konig, Fritz
Schaller, P., Schillerstr. 56
Theater-Garagen

Appendix VII. AUTOMOBILE EQUIPMENT IN URBAN AREAS IN CENTRAL GERMANY - IMPORTERS AND DEALERS - 1939

BRAUNSCHWEIG

Wholesalers

***Erich Duerkop, 60 Helmstedterstr. Also retailer of automobiles and accessories.

Retailers

***Erich Duerkop, 60 Helmstedterstr. Automobiles and accessories. Operates a driving school and repair shop.

**Reimers & Dummer, 9-10 Lellerstr. Automobiles and accessories; also operates a repair shop.

***Otto Schoenberg, 62 Wendenstr. Automobiles and accessories. Operates a repair shop and a service station.

DESSAU

Wholesalers

***Franz Grund, Strasse des 30. Januar 7. All kinds of automobile equipment.

Retailers

Julius Grase, Automobil- und Fahrradzentrale, Kavalierstr. 16. Automobiles; motor and bicyles; replacement parts.

EISENACH

Wholesalers

DKW Ersatzteile-General-Depot Walter Trebeljahr, Karolinienstr. 6. Automobile accessories.

ERFURT

Wholesalers

Julius Durrfeld Sohne, Fischersand 6-8. Wind shield and windows.

Hermann Erfurth, Rudolstadterstr. 3e. All kinds of automobile replacement parts.

Ottga-Gesellschaft Gotiwald & Co., Markstr. 41-42. Replacement parts for automobiles and motorcycles.

F. Scharnweber Nachf. F. Zubeil, Eichenstr. 4. Piston rings and iron hardware.

Max Schrader, Meienbergstr. 20. Automobile replacement parts.

Wolfarth & co. Krämpferstr. 9. Wind shields and windows.

Retailers

Auto-Ley, Loberring 7-9. Automobiles, motorcycles, and replacement parts.

Hugo Barth, Schmidstedterstr. 8. Automobiles and tractors, parts.

Sales Agents

G. Hofbauer, Loberring 7-9.

Ernst Matthey, Lilienstr. 8a.

GERA

Wholesalers

**"AHAG" Auto-Handels Ges. m.b.H. 38 Altenburger Str. Also agents handling automobiles and automobile parts.

Hans E. Junghans, Bahnhofstr. 12. Automobile accessories and replacement parts.

Ka-zet Kraftfahrzeug- und Fahrradzubehör- Grosshandlung G.m.b.H., Rudolf Ferberstr. 3. All kinds of accessories and replacement parts for auto vehicles and bicyles.

GOTHA

Nothing listed.

HALBERSTADT

Nothing listed.

HALLE

Wholesalers

Karius & Kahle, Inh. Th. Schaaf, Germarstr. 2. Cars, motorcycles, and ball bearings.

Horst-Heinz Keuffel, Gutenbergstr. 2. Automobile accessories and replacement parts.

Richard Lorenz, Genesuisstr. 34. Automobile accessories and replacement parts.

Retailers

F. Pfaff, Waisenhausing 14. Automobiles and accessories.

Otto Sander & Co/ GmbH, Moritzzwinger 17. Automobile tires and accessories.

Sales Agents

Fritz Becher, Friedrichplatz 8.

Paul Beyer, Drsselweg.

Curt Koehler and Co. 71-72 Pfaennerhoehe. Handling automobiles and tires.

Willy Tietze, Berlinerstr. 31.

Leo Westermann, Blückerstr.

HILDERSHEIM

Commission Merchants

***Wilhelm Jahns, 28-29 Brandisstr. Handling automobiles, tractors and accessories.

Sales Agents

***Wilhelm Jahns, 28-29 Brandisstr. Handling automobiles, tractors and accessories.

JENA

Nothing listed.

MAGDEBURG

Wholesalers

***Klass & Sachtleben, Henmarkt 4. Accessories and replacement parts.

Retailers

Georg Krüger, Königstr. 58. Automobile replacement parts; repair shop and garage.

Fritz and Co., 79 Hindenburgstr.

Otto Müller, Lüneburgerstr. 4. Automobiles and accessories.

Walter Rössler, Lübeckerstr. 124. Automobile and replacement parts.

Friedrich Timme, Neuhaldenerstr. 7-8. Springs, ball bearings.

A. Wunsch, Olvenstedterstr. 26. Automobile springs.

Sales Agents

Ernst Girmann, Olvenstedterstr. 43.

WEIMAR

Wholesalers

Georg Wicklein, Marienstr. 6. Automobile replacement parts.

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Appendix VIII. URBAN STREETCAR SYSTEMS IN CENTRAL GERMANY - 1937

CITY	LINE					EQUIPMENT				PERSONNEL			TRAFFIC		FINANCE	
	Length single track	Length double track	Total length of track operated	Length of track operated within city	Gauge	Electric railcars w. current collector	Trailers	Service cars	Electric current consumption	Office Employees	Workers	Total no. of employees	No. of passengers transported in 1000	No. lines '36	Operational revenue in 1000	Operational expense in 1000
	km.	km.	km.	km.	m.				kwh.						RM	RM
Braunschweig	14.09	22.93	37.02	33.90	1.000	95	173	3	3,960	43	522	565	17,950	8	1,691	1,390
Dessau	6.20	6.80	12.80	12.80	1.435	20	37	6	799	14	133	147	3,619	3	534	431
Eisenach	7.54	-	7.54	7.54	1.000	18	23	1	362	2	34	36	1,450	3	200	210
Erfurt	1.09	18.96	20.05	20.05	1.000	65	86	4	2,597	23	317	340	14,251	5	1,894	1,255
Gera	4.07	8.79	12.86	12.86	1.000	18	38	-	693	9	99	108	3,314	3	535	493
Gotha	3.08	3.16	6.24	6.24	1.000	17	17	2	410	4	55	59	2,072	5	285	264
Halberstadt	5.83	4.59	10.42	10.42	1.000	22	29	4	526	5	78	83	3,053	4	345	356
Halle	5.39	38.06	43.45	39.60	1.000	144	240	21	7,896	65	874	939	33,267	12	4,639	3,328
Jena	16.97	1.36	18.33	17.60	1.000	21	29	5	706	13	113	126	3,694	5	483	520
Magdeburg a	4.80	7.43	12.23	7.10	1.435	14	32	-	705	2	68	70	3,564	1	461	423
Magdeburg b	7.64	44.83	44.83	44.6	1.435	144	283	32	10,084	145	1232	1377	47,695	11	6,685	5,602
Merseburg	27.91	11.18	39.09	?	1.000	34	63	6	1,725	31	173	204	5,964	?	1,189	770
Weimar	-	5.95	5.95	?	1.000	-	-	-	79	2	36	38	-	-	-	-

1 - 12. See next page for data relating to name of carrier, name and hq. of owner, operating agency, agency in charge of regulations.

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APPENDIX VIII. (Cont'd)

NAME OF CARRIER	NAME AND HQ. OF OWNER	OPERATING AGENCY	AGENCY IN CHARGE OF REGULATIONS
Strassenbahn Braunschweig	City of Braunschweig	Stadwerke Abt. Strassenbahn u. Autobusbetrieb in Braunschweig	Reich's commissioner for the regulation of railroads in Hannover, for the Stadtlinien the chief of police, for Braunschweig-Wolfenbüttel the Finance Minister of Braunschweig
Dessauer Strassenbahn	Dessauer Strassenbahn-Gesellschaft, A.G. in Dessau, Heidestr. 57		Reich's commissioner for the regulation of railroads, in Halle, Ministry of State for Anhalt, Division of Economics in Dessau
Strassenbahn Eisenach	Elektrizitätswerk Eisenach		Reich's commissioner for the regulation of railroads in Erfurt, Ministry of Economics for Thüringen ~~in Weimar~~
Erfurter Elektrische Strassenbahn	Erfurter Elektrische Strassenbahn A.G. in Erfurt		Reich's commissioner for the regulation of railroads in Erfurt, chief of district government in Erfurt
Strassenbahn Gera	Kraftwerk und Strassenbahn, Gera, A.G., Hq. in Gera, Neue Str. 3		Reich's commissioner for the regulation of railroads in Erfurt, Ministry of Economics of Thüringen in Weimar
Strassenbahn Gotha	–	–	Reich's commissioner for the regulation of railroads in Erfurt, Ministry of Economics of Thüringen in Weimar.
Städtische Strassenbahn Halberstadt	City of Halberstadt	Verwaltung der Stadtwerke (Abt. Strassenbahn) in Halberstadt	Reich's commissioner for the regulation of railroads in Hannover, chief of district government in Magdeburg

APPENDIX VIII. (Cont'd)

NAME OF CARRIER	NAME AND HQ. OF OWNER	OPERATING AGENCY	AGENCY IN CHARGE OF REGULATIONS
Städtische Strassenbahn Halle	Werke der Stadt Halle, A.G., Halle Riebeckplatz 1	Werke der Stadt Halle, A.G., Abt. Strassenbahn in Halle	Reich's commissioner for the regulation of railroads in Halle, chief of district government in Merseburg
Strassenbahn Jena	Jenaer Elektrizitätswerk, A.G. in Jena		Reich's commissioner for the regulation of railroads in Erfurt, Ministry of Economics of Thüringen in Weimar
Vorortbahn Magdeburg-Schönebeck	Magdeburger Vorortbahnen, A.G. in Magdeburg Transberg 47-10	Magdeburger Strassen-Eisenbahn-Gesellschaft in Magdeburg	Reich's comissioner for the regulation of railroads in Hannover, chief of district government in Merseburg
Magdeburger Strassen-Eisenbahn	Magdeburger Strassen-Eisenbahn Gesellschaft in Magdeburg, Alte Ulrichstr. 10		Reich's commissioner for the regulation of railroads in Hannover, chief of district government in Magdeburg
Merseburger Überlandbahnen	Merserburger Überlandbahnen, AG. Sitz in Merseburg	Merserburger Überlandbahnen, AG. Verwaltung in Ammendorf (Saalkr)	Reich's commissioner for the regulation of railroads in Halle, Chief of district government in Merseburg
Städtische Strassenbahn Weimar	City of Weimar	Städtische Werke Weimar	Reich's commissioner for the regulation of railroads in Erfurt, Ministry of Economics of Thüringen in Weimar

(This line was discontinued 30.6.1937 and replaced by bus service)

Appendix IX. HOUSING STATISTICS FOR URBAN AREAS IN CENTRAL GERMANY - 1939

City	No. of dwellings in 1000	% dwellings built since 1919 in 1000	% dwellings - 3 rooms	No. of households in 1000	Population in thousands	Density of population per HA of total built-up area	No. of dwellings per hectare in 1000	No. of persons per dwelling	Total built-up area in HA
Braunschweig	60.8	29.5	21.0	62.9	196	99.2	30.6	3.2	1975
Dessau	38.4	40.1	44.8	37.3	119	105.4	34.1	3.1	1129
Eisenach	14.7	31.5	24.4	15.8	53.1	*	*	3.6	*
Erfurt	48.3	29.4	34.8	52.4	166	113.2	40	3.4	1457
Gera	28.6	20.1	56.2	30.1	83	92	32.1	2.7	891
Gotha	15.6	23.5	22.3	16.9	54.6	*	*	3.5	*
Halle	66.4	28.3	44.3	71.2	220	135.2	40.7	3.3	1627
Halberstadt	16.1	23.7	32.9	17.4	57	97.7	27.6	3.5	583
Jena	21.7	39.8	26.5	21.5	71	117.2	35.8	3.3	606
Magdeburg	110.1	28.7	47.7	114.3	337	125.1	40.9	3.1	2692
Weimar	17.2	33.8	27.4	17.8	66	176.11	45.8	3.8	375

* No figures available.

Appendix X. HOTELS IN URBAN AREAS IN CENTRAL GERMANY - 1939

In the following pages information will be found relating to hotels found in certain urban areas in Central Germany. This information is summarized below as to total numbers of hotels per area, those with detailed information and the known number of beds available:

City	Total number hotels	Detailed information	Known number of beds
Braunschweig	32	14	660-665
Dessau	30	3	220
Eisenach	36	20	981-996
Erfurt	32	16	910-952
Gera	24	8	333
Gotha	24	7	360
Halberstadt	23	8	300
Halle	35	14	868-874
Jena	40	10	453
Magdeburg	52	21	1,041-1,045
Weimar	25	17	796-808
Bitterfeld	16	2	100
Lenna	11	-	-
Schkopau	2	-	-
Merseburg	8	3	77
Wolfen	-	-	-

Hotels where detailed information is supplied may be assumed to be better grade than those with no data.

Appendix X (continued)

BITTERFELD - Hotels

	M Meters from station	No.of beds	No.of private bath-rooms	Running water	Yr. Summer, Winter	Kitchen	Central heating	Room with phone	Lift	Show-rooms	Meeting rooms	Garages (boxes)
Bahnhofshotel												
Dessauer Hof												
Deutsches Haus												
Deutscher Kaiser												
Döring, Alwin. Kaiserstr. 67	400	40	3	H&C	Y	x	x	x	-	x	x	3
Grötsch, Jos.												
Grüne Eiche B. Bitterfeld												
Hotel und Restauration Kaiserhof, Horst-Wesel-Str. 1	30	60	-	H&C	Y	x	x	-	-	x	x	G
Hotel Rheinischer Hof												
Preussicher Hof												
Prinz von Preussen												
Reichskanzler												
Stadt Berlin												
Stadt Hamburg												
Stadt Leipzig												
Weisses Ross												

Appendix X (continued)

BRAUNSCHWEIG - Hotels

	Meters from station	No.of beds	No.of private bath-rooms	Running water	Yr. summer, winter	Kitchen	Central heating	Room with phone	Lift	Show-rooms	Meeting rooms	Garages (boxes)
Alte Waage, Alte Waage 13												
Bahnhofs-Hotel, Gieseler 5	-	40	-	H&C	Y	x	x	-	-	-	x	G
Bayerischer Hof, Oelschlägern 40												
Börsen Hotel, Friedrich-Wilhelm-Str. 2		36										
Braunschweiger Hof, Ziegenmarkt 7												
Dannes Hotel, Augustpl. 2	500	35	-	H&C	Y	x	x	x	-	x	x	G
Frühlings-Hotel, Bankplatz 7	200	70	4	H&C	Y	x	x	x	-	x	x	-
Gold Löwe, Hagenmarkt 17												
Handelshof, Lessingplatz 5		40										
Hospiz am Bahnhof, Adolf-Hitler-Wall 3												
Hotel Deutsches Haus, Ruhfäutchenplatz 1	950	100	12	H&C	Y	x	x	x	x	x	x	2
Hotel Kaiserhof, Am Bruchtore 2	100	75	-	H&C	Y	x	x	x	x	x	x	-
Hotel Monopol, Adolf-Hitler-Platz 4	50	47	1	H&C	Y	x	x	-	-	-	-	-
Hotel Preussischer Hof, Damm 26/27	500	40-45	-	H&C	Y	x	x	x	x	x	x	G
Hotel St. Petersburg, Kohlmarkt 11		42										
Kölnischer Hof, Am Bruchtore 3												
Park Hotel, Steinweg 22	1,500	666	10	H&C	Y	x	x	x	x	-	x	G
Sächs. Hof, Gordelinger Str. 42	1,000	12	-	-	Y	x	-	-	-	-	-	-
Stadt Burg, Scitöppenstedter Str. 25												
Stadt Celle, Wollmarkt 19												
Stadt Halle, Güldenstr. 29												
Stadt Hamburg, Güldenstr. 32												
Stadt Leipzig, Hagenmarkt 14												
Stadt Lüneburg, Wendenstr. 53												
Stadt Magdeburg, Fallersleber Str. 21												
Stadt Salzwedel, Fallersleber Str. 7												
Stadt Seesen, Güldenstr. 9												
Stadt Wolfenbüttel, Kuhstr. 16												
Tanne, Güldenstr. 58												
Thüringenhof, Sophienstr. 1	300	25	1	H&C	Y	x	x	-	-	x	x	-
Weisse Taube, Raderlint 11												
Weisses Ross, Celler Str. 29		32	2	H&C	Y	x	x	x	-	x	x	18

Appendix X (continued)

DESSAU - Hotels

	Meters from station	No.of beds	No.of private bath-rooms	Running water	Yr. sum-mer, win-ter	Kit-chen	Cen-tral heat-ing	Room with phone	Lift	Show-rooms	Meet-ing rooms	Garages (boxes)
Anhaltiner Hof. Steinstr. 17												
Askanischer Hof. Agnesstr. 1												
Bahnhofshotel, Strasses der SA NE. 48												
Bahnhofshotel, Kaiserhof Kaiser-Str. 17/18	-	80	-	H&C	Y	x	x	x	-	x	x	3
Deutscher Kaiser, Luchstr. 14												
Drei Kronen, Zerbster Str. 42	-	40	1	H&C	Y	x	-	-	-	x	-	G
Elbhalle, Str. der SA NR. 48												
Erbprinz, Leeper Str. 108												
Fürstenhof, Askanische Str. 150												
Gaststätte Goldener Löwe, Zerbster Str. 28												
Goldn. Hirsch, Heidestr. 15												
Goldenes Lamm, Steinstr. 10												
Goldener Löwe, Loeper Str. 13												
Goldner Stern, Leopoldstr. 30												
Grüner Baum, St. Johnnisstr. 1												
Haideburg, Haideburgetz Str. 216												
Harmonie, Burgwallstr. 28												
Hotel Dessauer Hof, Antoinettenstr. 22												
Hotel Goldener Beutel, Steinstr. 3/4	1,000	100	8-10	H&C	Y	x	x	x	x	x	10	
Hotel Goldenes Schiff, Zerbster Str. 50												
Lindenhof, Askanischer Platz 4												
Münchener Hof, Askanische Str. 101												
Rheinland, Kühnauer Str. 51												
Schwarzer Adler, Steinstr. 58/59												
Schwarzer Bär, Zerbster Str. 24												
Spahrs Gasthaus, Möster Str. 26												
Stadt Berlin, Leipziger Str. 28a												
Strandhotel, Leipziger Str. 58												
Weisser Schwan, Zerbster Str. 51a												
Wörlitzer Hof, Muldstr. 4												

Appendix X (continued)

EISENACH - Hotels

	Meters from station	No.of beds	No.of private bath-rooms	Running water	Yr. sum-mer, win-ter	Kit-chen	Cen-tral heat-ing	Room with phone	Lift	Show-rooms	Meet-ing rooms	Garages (boxes)
Christl. Hospiz Glockenhof												
Christl. Hospiz Neulandhaus, Hahnweg 33	2,000	40	-	H&C	Y	x	x	-	-	x	x	G
Das Heimglückhaus, Mariental 27	1,500	26	-	H&C	Y	x	x	-	-	-	x	G
Deutsches Haus, Alexanderstr. 105	150	22	-	H&C	Y	x	-	-	-	-	-	G
Eisenacher Hof, Bahnhofstr. 24	150	20	3	C	S	x	x	-	-	-	-	G
Elisabethenruhe, Mariental 21, 23	2,000	85	-	part. H&C	Y	x	x	-	-	x	x	G
Gambrinushalle, Alexanderstr. 18	300	15	-	-	Y	x	x	-	-	x	x	-
Garni												
Gasthof zur Sonne, Georgen 50	1,000	45	-	part. H&C	Y	x	x	-	-	x	x	5
Gute Quelle												
Harmonie												
Hospiz Glockenhof, Karlsplatz 10	550	50	-	H&C	Y	x	-	-	-	x	x	3
Hotel Der Rautenkranz, Adolf-Hitler-Platz 22	900	130-140	30	H&C	Y	x	x	x	x	x	x	10
Hotel Fürstenhof Eisenach, Luisenstrasse 11/13	1,000	105	12	H&C	Y	x	x	x	x	x	x	G
Hotel Kaiserhof, Karthäuser Str. 2	400	85-90	15	H&C	Y	x	x	x	x	x	x	20
Hotel Karthäuser Hof, Karlsplatz 20	500	55	-	H&C	Y	x	x	-	-	x	x	G
Hotel Thüringer Hof, Karlsplatz 11	550	90	7	H&C	Y	x	x	x	x	x	x	6
Hotel u. Gaststätten auf der Wartburg	-	60	9	H&C	Y	x	x	x	-	-	x	G
Hotel Zimmermann	600	20	3	H&C	Y	x	x	-	x	x	x	G
Karlshall												
Kronprinz, Strasse der SA. 6	300	50	-	H&C	Y	x	x	-	-	x	x	G

Appendix X (continued)

EISENACH - Hotels (continued)

	Meters from station	No.of beds	No.of private bath-rooms	Running water	Yr. summer, winter	Kitchen	Central heating	Room with phone	Lift	Show-rooms	Meeting rooms	Garages (boxes)
Landgraf												
Liliengrund												
Mille, Johannisplatz 16	500	14	-	H&C	Y	x	x	-	-	x	x	G
Nouer Felsenkeller												
Phantasie												
Preussischer Hof												
Schillerhof, Schillerstr. 21	100	20	1	-	Y	x	x	-	-	-	-	G
Seehafen												
Sophienau												
Sophienhof. Karthäuserstrasse	800	35	-	H&C	Y	x	x	-	-	x	x	8
Stadt Leipzig												
Tanne												
Waldhotel-Frdh. Sophienau, Mariental 40	1,200	24	1	part. H&C	Y	x	-	-	-	-	x	4
Wartburgschleife												
Wilhelm												

Appendix X (continued)

ERFURT - Hotels

	Meters from station	No.of beds	No.of private bath-rooms	Running water	Yr. summer, winter	Kitchen	Central heating	Room with phone	Lift	Show-rooms	Meeting rooms	Garages (boxes)
Central-Hotel, Schmidtstedter Str. 31-33	200	42	1	C	Y	x	x	-	-	x	x	7
Christl. Hospiz, Regierungstr. 64												
Drei Rosen, Weimarische Str. 49												
Fürst Bismarck, Reglerring. 6	200	40	-	H&C	Y	x	x	-	-	x	x	G
Gaedke Wwe., Gartenstr. 74	150	50	-	H&C	Y	x	x	-	-	x	x	-
Gold. Hirsch, Schmidstedter Str. 42												
Grosser Kurfürst, Franckestr. 9												
Haus Bürgerhof, Adolf-Hitler-Str. 35/36	-	100	3	H&C	Y	x	x	x	x	x	x	9
Hotel Erfurter Hof, Bahnhofsplatz 1	10	140	15	H&C	Y	x	x	x	x	x	x	G
Hotel Kaiserhof, Adolf-Hitler-Str. 15	90	50	-	H&C	Y	x	x	-	-	x	x	-
Hotel Metropol, Adolf-Hitler-Str. 37	150	45	-	H&C	Y	x	x	x	-	-	-	-
Hotel National- Reichshof und Restaurant Stadtschänke, Adolf-Hitler-Str. 27/28	50	90	-	H&C	Y	x	x	x	x	x	x	G
Hotel Preusslscher Hof, Trommsdorffstr. 1	500	46-50	1	H&C	Y	x	x	-	-	x	x	12
Hotel zum Schwarzen Adler, Löberstr. 4		17										
Koch's Hotel und Fremdenheim, Dalbergsweg 1	500	50	3	part. H&C	Y	x	x	-	-	x	x	-
König von Preussen, Flutterstr. 9												
Kossenhaschen, Grossgasthof und Weinhandlung, Haus Kossenhaschen, Bahnhofsplatz 2	10	136-160	12-30	H&C	Y	x	x	x	x	x	x	G
Krämpfer Hof, Krämpferstr. 34/35												
Kronprinz, Futterstr. 1												
Lamm, Fischersand 44												
Mohren, Andreasstr. 7												
Rheinischer Hof, Lange Brücke 29												
Ringhotel, Krämpferring 29	300	56-70	2	H&C	Y	x	x	x	-	-	-	30
Sächsischer Hof, Andreasstr. 35/36												
Schmidstedter Hof, Schmidstedter Str. 16/17	100	24	-	-	Y	x	x	-	-	-	-	3

Appendix X (continued)

ERFURT - Hotels (continued)

	Meters from station	No.of beds	No.of private bath-rooms	Running water	Yr. summer, winter	Kitchen	Central heating	Room with phone	Lift	Show-rooms	Meeting rooms	Garages (boxes)
Sonneborn, Grosse Arche 6												
Stadt Chemnitz, Thomasstr. 57												
Stadtkrug, Ecke Regierungstr.-Lange Br.	-	14	-	C	Y	x	x	-	-	x	x	-
Stadt Nordhausen, Krämpferstr. 21												
Theatergarten, Walkmühlstr. 13	-	10	-	H&C	Y	x	x	-	-	x	x	-
Weimarischer Hof, Johannesstr. 74												
Wilder Mann, Johannesstr. 44												

Appendix X (continued)

GERA - Hotels

	Meters from station	No. of beds	No. of private bath rooms	Running water	Yr. summer, winter	Kitchen	Central heating	Room with phone	Lift	Showrooms	Meeting rooms	Garages (boxes)
Astoria, Neustadt 34	400	20	-	-	Y	x	x	-	-	x	x	-
Bahnhofs-Hotel, Schlageterplatz 1												
Bauernheim, Enzianstr. 1												
Christliches Hospiz, Schulerstr. 8												
Coburger Hof, Moltkestr. 8												
Deutscher Hof, Reichsstr. 44												
Helms Lokal, Kornmarkt 8												
Hotel Fürst Bismarck, Humboldtstr. 14	-	30	-	H&C	Y	x	x	-	-	x	x	G
Hotel Goldene Sonne, Heinrichstr. 21	1,500	60	-	H&C	Y	x	x	x	-	x	x	G
Hotel zum Kronprinz, Platz der SA. 1	1,000	40	-	H&C	Y	x	x	-	-	x	x	G
Hotel Schwarzer Bär, Schlossstr. 1	500	90	6	H&C	Y	x	x	x	x	x	x	6
Hotel Sonntag, Elisabethstr. 3												
Hotel Stadt Dresden, Adolf-Hitler-Platz 1	500	15	-	H&C	Y	x	x	-	-	x	x	-
Jungbrunn, Hospitalstr. 21												
Kühler Morgen, Waldstr. 27-29												
Regenbogen, Platz der SA. 22												
Scheffel, Thieschitzer Str. 23												
Schlosshof, Schlossstr. 5												
Stadt Gera, Gartenstr. 6												
Teutonenburg, Talstr. 35												
Thüringer Hof, Rossplatzgässchen 5												
Viktoria-Hotel, Bahnhofstr. 18	100	60	4	H&C	Y	x	x	-	-	x	x	3
Wettiner-Hof, Wilhelm-Frick-Platz 8												
Zentral-Hotel, Markt 11	1,000	18	-	-	Y	x	x	-	-	x	x	-

Appendix X (continued)

GOTHA - Hotels

	Meters from station	No.of beds	No.of private bath-rooms	Running water	Yr. sum-mer, win-ter	Kit-chen	Cen-tral heat-ing	Room with phone	Lift	Show-rooms	Meet-ing rooms	Garages (boxes)
Brauhof Schwabhäuser Strasse 24	900	70	-	H&C	Y	x	x	x	-	x	x	10
Deutsches Haus												
Deutscher Hof												
Erbprinz												
Fritz, Frdr.												
Goldene Schelle												
Haus der Deutschen Arbeitsfront												
Hotel Alt, Hindenburgstrasse 16	30	20	-	H&C	Y	x	x	-	-	-	x	3
Hotel Herzog Ernst, am Haupt.-u.Th.W.Bhf.	50	60	4	H&C	Y	x	x	-	-	x	x	6
Hotel Lange, Hindenburgstrasse 22	-	35	1	-	Y	x	x	-	-	x	x	G
Hotel Mahr, Auguststrasse 9	900	70	-	part. H&C	Y	x	x	-	-	x	x	G
Hotel Stadt Coburg		30										
Kahl, Rich												
Kleiner Seeberg												
Post												
Propheten												
Rosenau												
Schloss-Hotel, Karolinenplatz 1	1,000	75	15	H&C	Y	x	x	x	x	x	x	6
Schützen												
Schwan												
Schwarzburger Hof												
Thüring. Hof												
Weisser Hirsch												
Weisser Ross												

Appendix X (continued)

HALBERSTADT - Hotels

	Meters from station	No.of beds	No.of private bath-rooms	Running water	Yr. sum-mer, win-ter	Kit-chen	Cen-tral heat-ing	Room with phone	Lift	Show-rooms	Meet-ing rooms	Garages (boxes)
Bahnhofsh. Müggenburg, Bahnhofstr. 3	80	36	-	H&C	Y	x	x	-	-	x	x	8
Christl. Hospiz Seydlitzstr. 5	1,100	22	-	-	Y	x	x	-	-	-	-	-
Deutsches Haus												
Drei Lilien												
Goldener Anker												
Goldener Ring												
Hotel Halberstädter Hof, Bahnhofstr. 9c/10	50	65	5	H&C	Y	x	x	-	-	x	x	8
Hotel Prinz Eugen, Breite Weg 42/43	1,500	83	10	H&C	Y	x	x	x	x	x	x	6
Hotel Stadt Breslau, Breiter Weg 3/4	1,000	30	-	-	Y	x	x	-	-	-	x	7
Hotel Thüringer Hof												
Hotel Weisses Ross, Quedlinburger Str. 1/2	1,000	60	8	H&C	Y	x	x	x	-	x	x	6
Kameraden												
Konigs Hotel Ratskeller, Holzmarkt 24	600	19	-	-	Y	-	x	-	-	-	x	-
Kurhaus Thekenberge												
Prinz von Oranien												
Prinz von Preussen												
Reichskrone												
Schwarzer Adler												
Stadt Stolberg												
Südekum												
Wartburg												
Weisser Schwan												
Zur Eisenbahn, Bahnhofstr. 6	200	15	-	-	Y	x	x	-	-	-	-	3

Appendix X (cont'd)

HALLE - Hotels

	Meters from station	No. of beds	No. of private bathrooms	Running water	Yr. Summer Winter	Kitchen	Central Heating	Room with phone	Lift	Showrooms	Meeting rooms	Garages (boxes)
Achtelstetter, Hotel Stadt Hamburg, L., Gr. Steinstr. 73	1000	80		H&C	Y	x	x	x	x	x	x	G
Aug. Schneiders Hotel, Krukenbergstr. 29	1000	14	-	C	Y	x	-	-	-	x	x	G
Bad Wittekind, Wittekindstr. 13												
Berliner Hof, Berliner Str. 33												
Christl. Hospiz Parkhotel, Sophienstr. 32												
Förster, K., Mittelwache 3	1000	16	-	-	Y	x	-	-	-	-	-	G
Gasthof Goldenes Herz, Mansfelder Str. 57	-	16	-	H&C	Y	x	x	-	-	-	-	12
Goldene Rose Cornelius Barck Nachf., Rannische Str. 19												
Grüne Tanne, Mannsfelder Str. 58												
Grüner Baum, Franckestr. 14	300	36	-	-	Y	x	x	-	-	-	-	-
Grüner Hof, Schillerstr. 22												
Hansa-Hotel, Merseburger Str. 169												
Hohenzollern-Hof, Hindenburgstr. 65	200	120	10	H&C	Y	x	x	x	x	x	x	100
Hotel Europa Betriebsgesellschaft m.b.H., Hindenburgstr. 68	200	100	10	H&C	Y	x	x	x	x	x	x	2
Hotel Goldene Kugel, Leipziger Str. 57	200	160	25	H&C	Y	x	x	x	x	x	x	G
Hotel Haus Dietrich, Gr. Steinstr 64/65	1200	20	2	part. H&C	Y	x	x	-	-	x	x	-
Hotel und Restaurant Pilsner Urquell, Bärfüsstrstr. 20												
Hotel Rotes Ross, Leipziger Str. 76	700	84-90	3	H&C	Y	x	x	-	x	x	x	G

Appendix X (cont'd)

HALLE - Hotels (cont'd)

	Meters from station	No. of beds	No. of private bath-rooms	Running water	Yr. Summer Winter	Kitchen	Central Heating	Room with phone	Lift	Show-rooms	Meeting rooms	Garage (boxes)
Hotel z. Talvogt, Talamstr. 4												
Hotel Weltkugel, Delitzscher Str. 11	200	35	-	H&C	Y	x	x	-	-	-	-	-
Kurhaus Bad Wittekind, Wittekindstr. 13	1500	40	-	part. H&C	Y	x	x	x	-	-	x	4
Leuchtturm, Leipziger Chaussee 20												
Mansfelder Hof, Mansfelder Str. 29												
Mohr, Burgstr. 72												
Pfau, F., Alte Leipziger Chaussee 130												
Preussenhof, Delitzcher Str. 3		72										
Schwarzer Bock, Königstr. 51												
Schwarzes Ross, Dorotheenstr. 10												
Stadt Bernburg, Franckestr. 12												
Stadt Brandenburg, Blumenthalstr. 21												
Stadt Bremen, Martinstr. 18												
Stadt Hamburg, Adolf-Hitler-Ring		75	14									
Stadt Leipzig, Martinstr. 16												
Wintergarten, Hindenburgstr. 66												
Strohs Hotel, Leipziger Str. 54												

Appendix X (cont'd)

HILDESHEIM - Hotels

	Meters from station	No.of beds	No.of private bathrooms	Running water	Yr. Summer, Winter	Kitchen	Central Heating	Room with phone	Lift	Show rooms	Meeting rooms	Garages (boxes)
Deutscher Hof, Kurzer Hagen 1												
Hagentor, Langer Hagen 63												
Hospiz Ev. Vereinhaus, Zingel 38 (A Protestant Hostel)	1000	28	-	-	Y	x	x	-	-	x	x	2
Hotel Europäischer Hof, Am Hauptbahnhof	against	40	-	-	Y	x	x	-	-	x	x	G
Hotel Kaiserhof, Bahnhofplatz 7	against-	85	8	H&C	Y	x	x	x	-	x	x	10
Hotel Rheinischer Hof, Kaiserstr.4	300	30	-	H&C	Y	x	x	-	-	x	x	-
Hotel Wiener Hof, Friesenstr. 5		45	5	H&C	Y	x	x	-	-	x	x	10
Hotopps Hotel, Bahnhofsplatz 6	50	100	10	H&C	Y	x	x	x	-	x	x	34
Jungborn, Mastbergstr. 40												
Josebecker Hof, Goschenstr. 28												
Rosenstock, Pfaffenstieg 7-8												
Schraders Gasthof, Hannoversche Str.25												
Seidler, Joh., Leunisstr. 16												
Sievers, Herm., Kläperhagen 8/9		35										
Weisser Schwan, Schuhstr. 22	1000	28	-	H&C	Y	x	x	-	-	x	x	G
Würlburger Hof. Friesenstr. 9												

JENA - **Hotels**

	Meters from station	No. of beds	No. of private bathrooms	Running water	Yr. summer, winter	Kitchen	Central heating	Room with phone	Lift	Showrooms	Meeting rooms	Garages (boxes)
Alexanderhof												
Carl August												
Deutsches Haus, Holzmarkt 3	600	50	4	H&C	Y	x	x	x	x	-	-	-
Eberhardt, H.												
Erbprinz												
Göhres Ht. der Klosterhof, Fürstengraben	900	45	3	H&C	Y	x	x	x	x	x	x	G
Goldener Engel												
Grottenburg												
Grüner Kranz												
Gute Quelle, Johannisstrasse 11	800	18	-	-	Y	x	x	-	-	x	x	-
Hotel zum Schwarzen Adler, Holzmarkt 14	-	46	1	H&C	Y	x	x	-	-	-	x	3
Hotel Schwarzer Bär und Weingrosshandlung, Lutherplatz 2	600	50	5	H&C	Y	x	x	x	x	x	x	G
Hotel zur Sonne, Markt 22	400	60	3	H&C	Y	x	x	x	-	x	x	6
Jenaer Hof												
Landgrafenhaus												
Neus Geleitshaus												
Neuer Gasthof												
Papiermühle, Erfurter Str 102.	2000	20	-	H&C	Y	x	x	-	-	-	x	2G
Paraschkenmühle												
Roter Hirsch												
Schnapphans												
Schubertsburg												
Schwan												
Schweiz												
Steinborn												
Stern												

Appendix X (continued)

JENA - Hotels (cont'd)

	Meters from station	No. of beds	No. of private bathrooms	Running water	Yr. summer, winter	Kitchen	Central heating	Room with phone	Lift	Showrooms	Meeting rooms	Garages (boxes)
Thüringer Hof												
Turnhalle												
Viktoria		34										
Webers Gasthof												
Weimarischer Hof, Unterm Markt 4/6	500	50	3	H&C	Y	x	x	x	-	x	x	7
Weintraube												
Winzerhof												
Zur Oelmühle Kaiser-Wilhelm-Str.27	1200	80	-	H&C	Y	x	x	-	-	x	x	26
Zwei Linden												
On the neighboring hilltops												
Forst	½ hr.					x						
Fuchsturm (on the Hausberg)	3/4 hr.					x						
Jenzig	1¼ hr.					x						
Landgraf	½ hr.					x						

LEUNA - Hotels

	Meters from station	No. of beds	No. of private bathrooms	Running water	Yr. summer, winter	Kitchen	Central heating	Room with phone	Lift	Showrooms	Meeting rooms	Garages (boxes)
Auebrücke												
Bahnhof												
Böhme, G.												
Heiterer Blick												
Koloniegasthaus												
Leuna Teich												
Pfälzer Hof												
Saalekrug												
Schröter												
Strauch, H.												
Waldbad												

Appendix X (continued)

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MAGDEBURG - Hotels

	Meters from station	No. of beds	No. of private bathrooms	Running water	Yr. Summer, Winter	Kitchen	Central Heating	Room with phone	Lift	Showrooms	Meeting Rooms	Garages (boxes)	No. of rooms
Alte Rose, Schwertfegerstr. 22													
Alter Schlag, Leipziger Str. 2													
Bellevue, Bahnhofstr. 2													
Berg's Hotel, City-Hotel, Alte Ulrichstr. 3	500	80	4	H&C	Y	x	x	x	x	x	x	–	66
Bigrecke, Breiter Weg 130/31													
Braunes Ross, Prälatenstr. 33													
Brustawitzki, Chr., Brandenburger Str. 2A													
Central-Hotel, Bahnhofstr. 4	against	70-76	2	H&C	Y	x	x	x	x	x	x	–	50
Christl. Hospiz, Bahnhofstr. 30													
Continental-Hotel, Bahnhofstr. 3	–	90	6	H&C	Y	x	x	x	x	x	x	6	65
Deutsches Haus, Neue Ulrichstr. 4	300	25	–	–	Y	x	–	–	–	x	x	–	
Deutscher Hof, Knockenhauer													
Erholung, Pochau													
Gast-und Logierhaus, Alter Zieten, Katzensprung 13	–	16	–	–	Y	x	–	–	–	–	–	–	
Gasthof zum Braunen Ross, Prälatenstr. 33	1000	28	–	C	Y	x	x	–	–	–	–	x	
Goldner Anker, Lübecker Str. 14													
Goldenen Arm, Georgenplatz 14	700	27	–	–	Y	x	–	–	–	–	–	x	
Goldner Löwe, Halberstädter Str. 137													
Grüner Baum, Kölner Str. 12	200	30	2	part. H&C	Y	x	x	–	–	x	x	G	
Heinrichshof, Schrotdorfer Str. 15													
Hotel Fürst Bismarck, Bahnhofstr. 9	25	60	1	H&C	Y	x	x	x	–	–	x	–	50
Hotel Magdeburger, Alte Ulrichstr. 4/5	400	120	25	H&C	Y	x	x	x	x	x	x	–	90
Hotel der Reichshof, Kantstr. 9	100	75	5	H&C	Y	x	x	x	x	x	x	–	
Hotel u. Keglerheim, Kurt Sorgestr. 21													

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MAGDEBURG - Hotels (cont'd)

	Meters from station	No. of beds	No. of private bathrooms	Running water	Yr. Summer, Winter	Kitchen	Central Heating	Room with phone	Lift	Showrooms	Meeting Rooms	Garages (boxes)	No. of rooms
Hotel und Restaurant Thüringer Hof, Bahnhofstr. 7	50	34	-	H&C	Y	x	x	x	x	x	x	-	
Hotel Weisser Bär, Weinfasstr. 6	500	43	-	H&C	Y	x	x	-	-	x	x	-	
Kaatz, Wilhelm. Bahnhofstr. 6													
Kaiserhof, Kutscherstr. 21	400	80	2	H&C	Y	x	x	x	x	x	x	-	50
Linde, Halberstädter Str. 193													
Neuer-Anker, Lübecker Str. 13.													
Neue Welt, Fasslochsberg 9													
Neustädter Bahnhof, Gröperstr. 2													
Palast-Hotel Bautz, Bahnhofstr. 13		50											50
Preussischer Hof, Lübecker Str. 87													
Regenbogen. Heumarkt 2													
Riedel, Otto. Zollstr. 10													
Schopen. Schopenstr. 7													
Schwarzer Adler, Schönebecker Str. 118													
Schwarzer Adler, Alt Diesdorf 7/8													
Schwarzer Bock, Schöneeckstr. 1A	300	32	1	H&C	Y	x	x	-	-	-	x	G	
Schwarzes Ross, Hohepfortestr. 9													
Stadt Bremen, Prälatenstr 24.													
Stadt Magdeburg, Schrotdorfer Str. 15													
Stadt Prag, Bärstr 1B		40											30
Strauch's Hotel, Gegenüb. D. Hauptbahnhof	20	46	1	H&C	Y	-	x	-	-	-	-	-	
Viktoria-Bräu. Heiligegeiststr. 2													
Voller Mond, Schöneeckstr. 10													
Weinstock, Schöneeckstr. 8													
Weise, Alf., Hasselbachstr. 7	-	40	2	H&C	Y	x	x	x	x	-	x	-	
Zum Goldener Stern, Bahnhofstr. 8	100	36	2	H&C	Y	x	x	-	-	-	x	-	
Zum Kanzler. Kantstr. 7	60	19	1	-	Y	x	-	-	-	-	-	-	

Appendix X (continued)

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MERSEBURG - Hotels

	Meters from station	No. of beds	No. of private bath-rooms	Running Water	Yr. sum-mer, win-ter	Kit-chen	Cen-tral heat-ing	Room with phone	Lift	Show-rooms	Meet-ing rooms	Garages (boxes)
Alter Dessauer, Dammstr. 6	300	35	–	H&C	Y	x	x	–	–	x	x	G
Alte Post												
Dammschloss												
Domschenke												
Drei Schwäne, Lauchstädter Str. 12	300	18	–	–	Y	x	x	–	–	–	x	2
Goldene Sonne, Am Markt 14	500	24	–	H&C	Y	x	x	–	–	x	x	4
Grüne Linde												
Hohenzollern												

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WEIMAR - Hotels

	Meters from station	No. of beds	No. of private bath-rooms	Running Water	Yr. summer, winter	Kitchen	Central heating	Room with phone	Lift	Show-rooms	Meeting rooms	Garages (boxes)
Alexanderhof												
Bürgerhof												
Chemnitius		60										
Deutscher Hof												
Elefant, Markt 19	1750	140	46	H&C	Y	x	x	x	x	x	x	G
Fremdenh. Haus Perrin, Moltkestr. 11	1300	15	-	-	Y	x	x	-	-	-	-	-
Fürst Bismarck, Erfurter Str. 35	250	25	-	-	Y	x	x	-	-	x	x	3
Gasthof zum Löwen, Wartzdorfstr. 81	200	20	1	-	Y	x	x	-	-	-	-	G
Gast.-u. Logierh. Weisses Ross, Ludend.-St. 73	200	19	-	-	Y	x	-	-	-	-	x	-
Grossherzog von Sachsen		45										
Gute Quelle												
Haus Bieler, Julius-Schreck-Str. 4	1300	31	-	part. H&C	Y	x	x	-	-	x	-	-
Hospiz Martha Marienheim, Amalienstr.2	1800	35	2	-	Y	x	x	-	-	-	x	-
Hotel Fürstenhof-Russisscher Hof, Karlsplatz 2	500	50-56	5	H&C	Y	x	x	x	-	x	x	10
Hotel Germania, Sophienstr. 13	100	50	-	H&C	Y	x	x	-	-	x	x	G
Hotel Hohenzollern, Brennerstr. 42	20	40	-	Part. H&C	Y	x	x	-	-	x	x	G
Hotel Kaiserin Augusta, next to the station		90	12	H&C	Y	x	x	x	-	x	x	15
Parkhotel Erbprinz, Markt 16	1800	90	30	H&C	Y	x	x	x	x	x	x	10
Preussischer Hof												
Scharfe Ecke												
Sonne												
Thüringer Hof, Am Adolf Hitler-Platz	400	40	-	part. H&C	Y	x	x	-	-	x	x	G
Viktoria, Sophienstr. 16	30	30-34	-	part. H&C	Y	x	x	x	-	x	x	1
Wettiner Hof												
Zum Weissen Schwan, Frauentorstr. 23	1800	16-20	-	-	Y	x	-	-	-	-	-	-

Appendix X (continued)

WITTENBERG - Hotels

	Meters from station	No. of beds	No. of private bath-rooms	Running water	Yr. summer, winter	Kitchen	Central heating	Room with phone	Lift	Show-rooms	Meeting rooms	Garages (boxes)
Alter Dessauer												
Central-Hotel												
Germania, Adolf-Hitler-Str. 53	700	48	2	H&C	Y	x	x	-	-	x	x	12
Goldene Sonne, Bürgermeisterstr. 8	-	19	-	-	Y	x	x	-	-	-	x	2
Goldner Stern												
Grauer Wolf												
Grüner Baum												
Gute Quelle												
Hotel Goldener Adler, Markt. 7	1000	80	15	H&C	Y	x	x	x	-	x	x	G
Hotel Wittenberger Hof, Collegienstr. 55	500	45	3	H&C	Y	x	x	x	-	x	x	G
Klosterhof												
Reichspost												
Schlossgarten-Hotel, Dessauer Str. 122	1500	41	1	H&C	Y	x	x	-	-	x	x	8
Schützenhaus												
Schwarzer Bär												
Stadt Frankfurt, Adolf-Hitler-Str. 3	300	60	-	H&C	Y	x	x	-	-	x	x	4
Zwei Linden												

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Appendix XI. SCHOOLS IN URBAN AREAS IN CENTRAL GERMANY, 1937

	Public Schools		Higher Institutions of Learning				City Professional and Trade Schools				Special Schools	Universities
			Male		Female							
	No. of schools	Student population	No. of schools	Student population	No. of schools	Student population	No. of schools	Student population	Total no. of schools	Total no. of students		
Braunschweig	30	13,631	8	2,136	5	1,110	1	391	44	17,268	*	
Dessau	17	9,142	3	891	2	603	2	645	24	11,281		
Eisenach	6	4,268	3	4,038	-	-	1	212	10	8,515		
Erfurt	20	13,115	4	1,553	3	836	5	356	32	15,860	*	
Gera	16	7,704	2	747	2	785	1	210	21	9,446		
Gotha	7	4,416	3	2,637	-	-	1	235	11	7,228	*	
Halberstadt	7	4,874	3	799	3	463	-	-	13	5,136		
Halle	24	19,390	4	68	4	1,412	4	742	36	21,612		1
Jena	11	5,087	3	980	2	490	3	252	19	6,819		1
Magdeburg	47	25,760	8	2,660	5	1,704	3	913	63	31,127		
Weimar	8	4,755	3	1,139	1	313	1	318	13	6,525		

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Appendix XII. MUSEUMS IN URBAN AREAS IN CENTRAL GERMANY

Braunschweig

- Burg Dankwarderode
- Herzog-Anton-Ulrich-Museum or Landes Museum
- Städtisches Museum
- Vaterländisches Museum

Dessau

- Anhaltische Gemälde-Galerie
- Schloss

Eisenach

- Thüringer Museum
- Wartburg

Erfurt

- Städtisches Museum or Anger Museum
- Museum für Heimat Geschicte

Gera

- Städtisches Museum
- Schloss Osterstein

Gotha

- Herzogliches Museum
- Schloss Friedenstein

Halberstadt

- Städtisches Museum

Halle

- Museum für Kunst und Kunstgewerbe
- Landesanstalt für Vorgeschicte
- Geologisches Institut
- Mineralogisches Institut
- Städtisches Museum in der Moritzburg

Jena

- Städtisches Museum

Magdeburg

- Kaiser-Friederich-Museum
- Museum für Natur- und Heimat-Kunde

Weimar

- Landes-Museum
- Schloss-Museum
- Rokoko-Museum (at Belvedere, 2½ mi. from ctr. of Weimar)

Appendix XIII. CHURCHES IN URBAN AREAS IN CENTRAL GERMANY - 1939

City	Evangelican	Catholic	Others
Bitterfeld	1	1	1
Braunschweig	17	3	1
Dessau	14	3	1
Eisenach	4	1	4
Erfurt	13	9	2
Gera	9	1	-
Gotha	4	2	-
Halberstadt	7	2	1
Halle	13	3	2
Jena	10	1	-
Leuna	6	1	-
Magdeburg	23	5	4
Merseburg	3	1	1
Weimar	3	1	1
Wittenberg	3	1	-

Appendix XIV. RESTAURANTS AND COFFEEHOUSES IN URBAN AREAS - 1939

City	Restaurants	Coffeehouses
Bitterfeld	21	2
Braunschweig	185	21
Dessau	172	10
Erfurt	202	15
Eisenach	103	3
Gera	170	13
Gotha	76	2
Halberstadt	78	4
Halle	243	20
Jena	81	6
Magdeburg	397	29
Merseburg	47	5
Weimar	88	6
Wittenberg	57	4
Wolfen	5	none listed

Appendix XV. MOTION PICTURE HOUSES IN CENTRAL GERMANY - 1925

Province	Total Theaters No. S.C.[1]	5000 No.S.C.	10000 No.S.C.	20000 No.S.C.	50000 No.S.C.	100000 No.S.C.	over 100000 No.S.C.
Anhalt	29 - 10528	11 - 3300	5 - 1325	5 - 1918	4 - 1785	4 - 2200	-
Braunschweig	28 - 12082	12 - 3064	7 - 2207	5 - 2956	-	-	4 - 3855
Thuringia	163 - 54556	92 - 25586	24 - 8040	17 - 7150	20 - 8685	10 - 5095	-
Prov. Sachsen	321 - 112280	187 - 53822	31 - 10446	30 - 11358	40 - 18073	-	33 - 18581
Total No. and S.C.	541 - 189446	302 - 85772	67 - 22018	57 - 23382	64 - 28543	14 - 7295	37 - 22436

Motion Picture Houses in Urban Areas - 1935

City	No.	S.C.
Braunschweig	6	4601
Erfurt	6	5424
Halle	10	6546
Magdeburg	22	11747

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1. S.C. - Seating capacity.

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Appendix XVI. BUILDINGS AVAILABLE FOR OFFICE SPACE, BILLETING, MASS FEEDING, AND MEETING PLACES IN URBAN AREAS IN CENTRAL GERMANY

	Hotels	Schools	Churches	Theaters	Motion Picture Houses	Barracks	Museums	Garages	Ice Plants	Restaurants	Coffee Houses
Braunschweig	32	47*	21	3	6	x	4	25	2	185	21
Dessau	30	24	18	1	?	x	2	2	2	172	10
Eisenach	32	10	9	1	?	x	2	8	-	103	13
Erfurt	36	33*	24	2	6	?	2	12	1	202	15
Gera	24	21	10	1	?	?	2	3	2	170	13
Gotha	24	12*	6	1	?	?	2	7	1	76	2
Halberstadt	23	13	10	1	?	x	1	2	1	78	4
Halle	35	37*	18	6	10	x	5	16	2	243	20
Jena	40	20*	11	?	?	?	1	3	-	81	6
Magdeburg	52	63	32	5	22	x	2	31	5	397	29
Weimar	25	13	5	1	?	?	3	6	1	88	6

---

* Includes special schools and universities.

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Appendix XVII ICE PLANTS IN URBAN AREAS IN CENTRAL GERMANY 1939

Braunschweig

Eisfabrik für das Gastwirtsgewerbe GmbH., Ritterstr. 20
Eiswerk GmbH., Hamburger Str. 6

Dessau

Brauerei Schade GmbH., Lange Gasse Nr. 8-13
Dessauer Eisvertrieb Walde & Gensch, Franzstr. 15

Eisenach

None listed

Erfurt

Erfurter Eiswerk August Ingwersen, Brühler Hohlweg 17

Gera

Städt Kunstwerk, Schlacthof
Zerbst, Otto, Lassener Str. 22

Gotha

Nennstiel, Otto, Schutzenallee 1a

Halberstadt

Halberstädter Klareisfabrik Eleonore Gewert

Halle

Eiswerk Passendorf Karl Bedau
Walter Schroder, Reilstr. 23

Jena

None listed

Magdeburg

Island-Eis Karl Reichert, Kurfürstenstr. 8
Körber, August, Lessingstr. 61-63
Schultz, E., Seestr. 25
Vereinigte Magdeburger Eiswerke, Otto-von-Guericke-Str. 5
Fuhrmann, Albert, Poltestr. 14

Weimar

Altwein Söhne, Emil

Due to its large size, the following document has been filmed in segments. The order of the segments is as follows: left to right, top to bottom.

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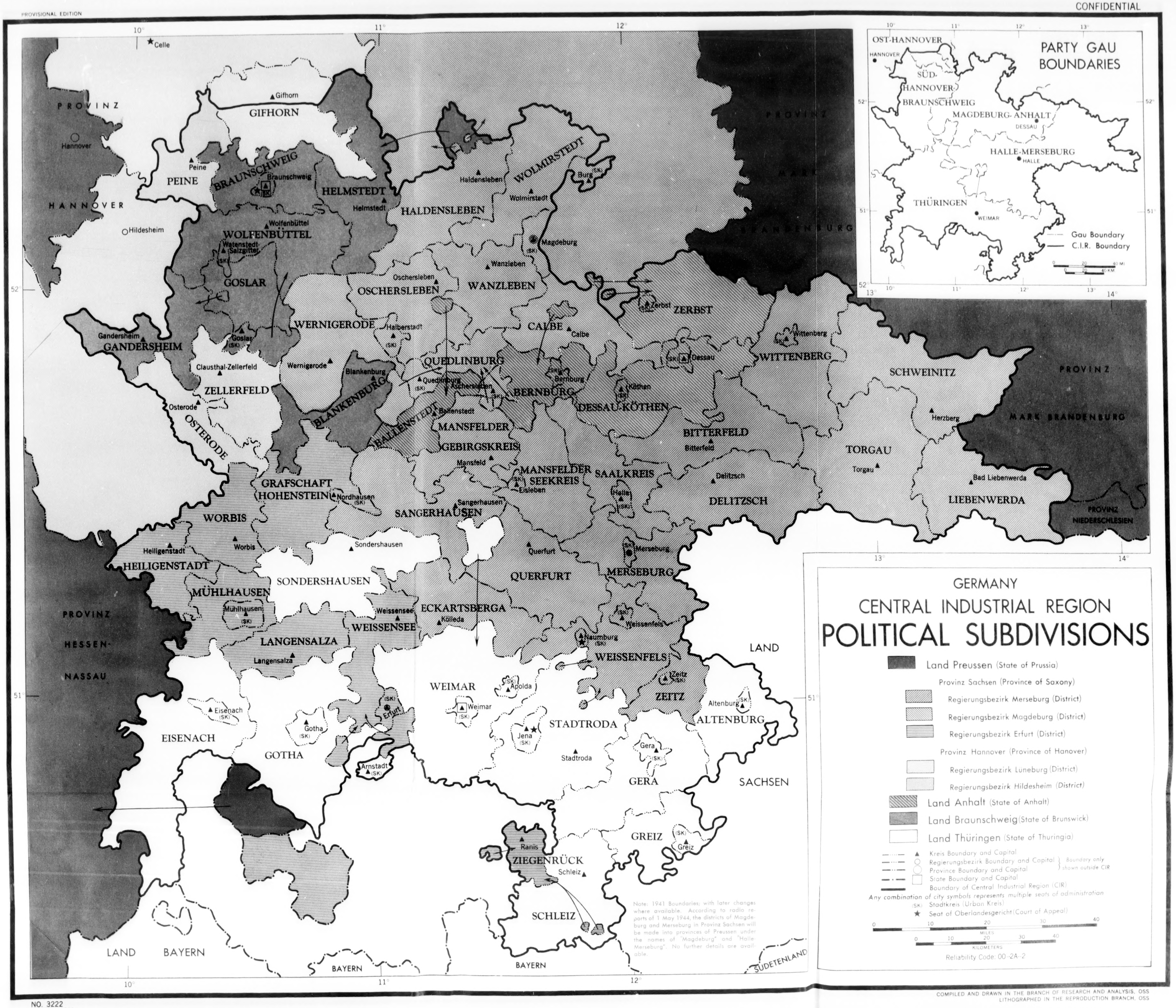

PARTY GAU BOUNDARIES
OST-HANNOVER
SÜD-HANNOVER-BRAUNSCHWEIG
MAGDEBURG-ANHALT
HALLE-MERSEBURG
THÜRINGEN
Gau Boundary
C.I.R. Boundary
PROVINZ HANNOVER
Celle
Gifhorn
GIFHORN
Hannover
PEINE
Peine
BRAUNSCHWEIG
Braunschweig
HELMSTEDT
Helmstedt
HALDENSLEBEN
Haldensleben
WOLMIRSTEDT
Wolmirstedt
Burg
Magdeburg
Hildesheim
WOLFENBÜTTEL
Wolfenbüttel
Watenstedt-Salzgitter
GOSLAR
Goslar
WANZLEBEN
Wanzleben
OSCHERSLEBEN
Oschersleben
ZERBST
Zerbst
PROVINZ MARK BRANDENBURG
GANDERSHEIM
Gandersheim
WERNIGERODE
Wernigerode
Halberstadt
CALBE
Calbe
Dessau
Wittenberg
WITTENBERG
Clausthal-Zellerfeld
ZELLERFELD
Blankenburg
BLANKENBURG
QUEDLINBURG
Quedlinburg
Aschersleben
BERNBURG
Bernburg
Köthen
DESSAU-KÖTHEN
SCHWEINITZ
PROVINZ MARK BRANDENBURG
Osterode
OSTERODE
BALLENSTEDT
Ballenstedt
MANSFELDER GEBIRGSKREIS
Mansfeld
BITTERFELD
Bitterfeld
Herzberg
TORGAU
Torgau
GRAFSCHAFT HOHENSTEIN
Nordhausen
MANSFELDER SEEKREIS
Eisleben
SAALKREIS
Halle
Delitzsch
DELITZSCH
Bad Liebenwerda
LIEBENWERDA
PROVINZ NIEDERSCHLESIEN
SANGERHAUSEN
Sangerhausen
WORBIS
Worbis
Heiligenstadt
HEILIGENSTADT
Sondershausen
SONDERSHAUSEN
Querfurt
QUERFURT
Merseburg
MERSEBURG
MÜHLHAUSEN
Mühlhausen
Weissensee
WEISSENSEE
ECKARTSBERGA
Kölleda
Weissenfels
PROVINZ HESSEN-NASSAU
LANGENSALZA
Langensalza
Naumburg
WEISSENFELS
LAND SACHSEN
WEIMAR
Weimar
Apolda
Zeitz
ZEITZ
Altenburg
ALTENBURG
Eisenach
EISENACH
Gotha
GOTHA
Erfurt
Jena
STADTRODA
Stadtroda
Gera
GERA
Arnstadt
GREIZ
Greiz
Ranis
ZIEGENRÜCK
Schleiz
SCHLEIZ
LAND BAYERN
BAYERN
SUDETENLAND
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10°
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51°
52°
0 20 40 MI
0 20 40 KM

Note: 1941 Boundaries; with later changes where available. According to radio reports of 1 May 1944, the districts of Magdeburg and Merseburg in Provinz Sachsen will be made into provinces of Preussen under the names of "Magdeburg" and "Halle-Merseburg". No further details are available.

GERMANY
CENTRAL INDUSTRIAL REGION
POLITICAL SUBDIVISIONS

▨ Land Preussen (State of Prussia)

Provinz Sachsen (Province of Saxony)

▨ Regierungsbezirk Merseburg (District)

▨ Regierungsbezirk Magdeburg (District)

▤ Regierungsbezirk Erfurt (District)

Provinz Hannover (Province of Hanover)

▨ Regierungsbezirk Luneburg (District)

▨ Regierungsbezirk Hildesheim (District)

▨ Land Anhalt (State of Anhalt)

▨ Land Braunschweig (State of Brunswick)

☐ Land Thüringen (State of Thuringia)

- ▲ Kreis Boundary and Capital
- ○ Regierungsbezirk Boundary and Capital } *Boundary only shown outside CIR*
- ○ Province Boundary and Capital
- ☐ State Boundary and Capital
- Boundary of Central Industrial Region (CIR)

Any combination of city symbols represents multiple seats of administration

(SK) Stadtkreis (Urban Kreis)

★ Seat of Oberlandesgericht (Court of Appeal)

0 10 20 30 40 MILES

0 10 20 30 40 KILOMETERS

Reliability Code: 00--2A--2

NO. 3222
20 APRIL 1944

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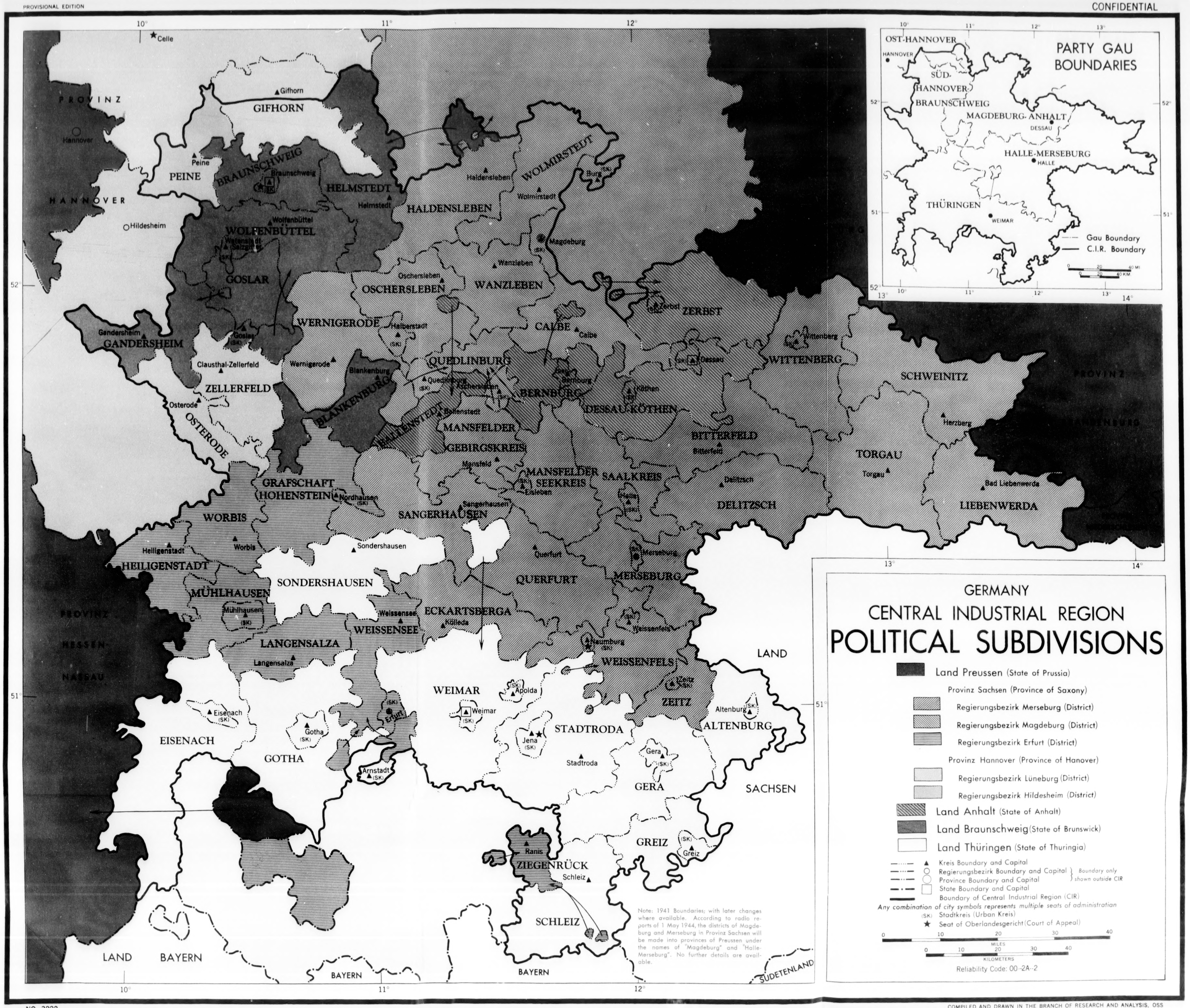
1946 in August 1972, and reports dated 1947 in August 1973.


PARTY GAU BOUNDARIES
OST-HANNOVER
SÜD-HANNOVER-BRAUNSCHWEIG
MAGDEBURG-ANHALT
HALLE-MERSEBURG
THÜRINGEN
HANNOVER
DESSAU
HALLE
WEIMAR
Gau Boundary
C.I.R. Boundary
PROVINZ HANNOVER
PROVINZ HESSEN-NASSAU
PROVINZ BRANDENBURG
LAND SACHSEN
LAND BAYERN
BAYERN
SUDETENLAND
Celle
Hannover
Hildesheim
GIFHORN
Gifhorn
PEINE
Peine
BRAUNSCHWEIG
Braunschweig
HELMSTEDT
Helmstedt
WOLFENBÜTTEL
Wolfenbüttel
Watenstedt-Salzgitter
GOSLAR
Goslar
GANDERSHEIM
Gandersheim
Clausthal-Zellerfeld
ZELLERFELD
Osterode
OSTERODE
BLANKENBURG
Blankenburg
HALDENSLEBEN
Haldensleben
WOLMIRSTEDT
Wolmirstedt
Burg
Magdeburg
WANZLEBEN
Wanzleben
OSCHERSLEBEN
Oschersleben
WERNIGERODE
Wernigerode
Halberstadt
QUEDLINBURG
Quedlinburg
Aschersleben
CALBE
Calbe
ZERBST
Zerbst
Dessau
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DESSAU-KÖTHEN
BALLENSTEDT
Ballenstedt
MANSFELDER GEBIRGSKREIS
Mansfeld
MANSFELDER SEEKREIS
Eisleben
SAALKREIS
Halle
BITTERFELD
Bitterfeld
WITTENBERG
Wittenberg
SCHWEINITZ
Herzberg
TORGAU
Torgau
Bad Liebenwerda
LIEBENWERDA
Delitzsch
DELITZSCH
GRAFSCHAFT HOHENSTEIN
Nordhausen
SANGERHAUSEN
Sangerhausen
WORBIS
Worbis
Heiligenstadt
HEILIGENSTADT
MÜHLHAUSEN
Mühlhausen
SONDERSHAUSEN
Sondershausen
Weissensee
WEISSENSEE
LANGENSALZA
Langensalza
ECKARTSBERGA
Kölleda
QUERFURT
Querfurt
MERSEBURG
Merseburg
Weissenfels
Naumburg
WEISSENFELS
Zeitz
ZEITZ
Altenburg
ALTENBURG
WEIMAR
Weimar
Apolda
Erfurt
Eisenach
EISENACH
Gotha
GOTHA
Arnstadt
Jena
STADTRODA
Stadtroda
Gera
GERA
GREIZ
Greiz
Ranis
ZIEGENRÜCK
Schleiz
SCHLEIZ
(SK)
10°
11°
12°
13°
14°
51°
52°

GERMANY
CENTRAL INDUSTRIAL REGION
POLITICAL SUBDIVISIONS

■	Land Preussen (State of Prussia)
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▨	Regierungsbezirk Magdeburg (District)
▤	Regierungsbezirk Erfurt (District)
	Provinz Hannover (Province of Hanover)
▨	Regierungsbezirk Lüneburg (District)
▨	Regierungsbezirk Hildesheim (District)
▨	Land Anhalt (State of Anhalt)
■	Land Braunschweig (State of Brunswick)
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0 10 20 30 40 KILOMETERS

Reliability Code: 00--2A--2

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20 APRIL 1944

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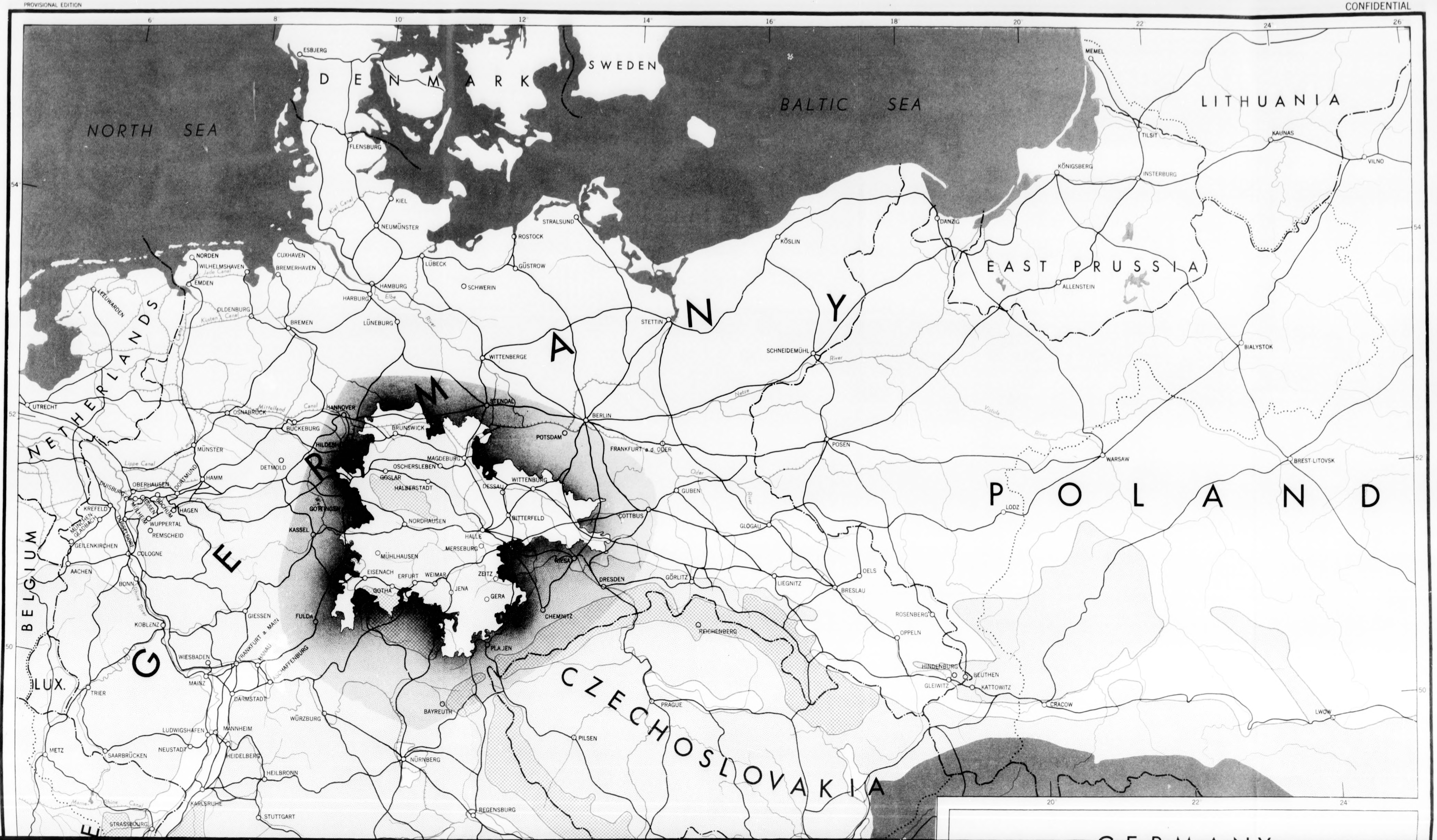

NORTH SEA
BALTIC SEA
DENMARK
SWEDEN
LITHUANIA
EAST PRUSSIA
NETHERLANDS
BELGIUM
LUX.
GERMANY
POLAND
CZECHOSLOVAKIA
ESBJERG
FLENSBURG
KIEL
NEUMÜNSTER
NORDEN
WILHELMSHAVEN
EMDEN
CUXHAVEN
BREMERHAVEN
HAMBURG
HARBURG
LÜBECK
ROSTOCK
GÜSTROW
STRALSUND
SCHWERIN
OLDENBURG
BREMEN
LÜNEBURG
WITTENBERGE
STETTIN
KÖSLIN
DANZIG
KÖNIGSBERG
INSTERBURG
TILSIT
MEMEL
KAUNAS
VILNO
ALLENSTEIN
SCHNEIDEMÜHL
BIALYSTOK
LEEUWARDEN
UTRECHT
OSNABRÜCK
HANNOVER
BÜCKEBURG
HILDESHEIM
BRUNSWICK
STENDAL
BERLIN
POTSDAM
MAGDEBURG
OSCHERSLEBEN
GOSLAR
HALBERSTADT
DESSAU
WITTENBURG
FRANKFURT a.d. ODER
POSEN
WARSAW
BREST-LITOVSK
MÜNSTER
HAMM
DORTMUND
OBERHAUSEN
DUISBURG
ESSEN
BOCHUM
KREFELD
HAGEN
WUPPERTAL
REMSCHEID
MÜNCHEN GLADBACH
GEILENKIRCHEN
DÜSSELDORF
COLOGNE
AACHEN
BONN
DETMOLD
GÖTTINGEN
KASSEL
NORDHAUSEN
HALLE
BITTERFELD
GUBEN
COTTBUS
GLOGAU
LODZ
MERSEBURG
MÜHLHAUSEN
EISENACH
ERFURT
WEIMAR
ZEITZ
JENA
GERA
GOTHA
RIESA
DRESDEN
GÖRLITZ
LIEGNITZ
OELS
BRESLAU
CHEMNITZ
PLAUEN
REICHENBERG
ROSENBERG
OPPELN
HINDENBURG
BEUTHEN
GLEIWITZ
KATTOWITZ
CRACOW
LWOW
FULDA
GIESSEN
KOBLENZ
WIESBADEN
FRANKFURT a. MAIN
HANAU
ASCHAFFENBURG
MAINZ
DARMSTADT
TRIER
BAYREUTH
PRAGUE
PILSEN
WÜRZBURG
LUDWIGSHAFEN
MANNHEIM
HEIDELBERG
NEUSTADT
SAARBRÜCKEN
METZ
HEILBRONN
NÜRNBERG
KARLSRUHE
STUTTGART
REGENSBURG
STRASSBURG
Kiel Canal
Elbe River
Kusten Canal
Mittelland Canal
Lippe Canal
Rhine River
Marne Rhine Canal
Oder River
Netze River
Vistula River
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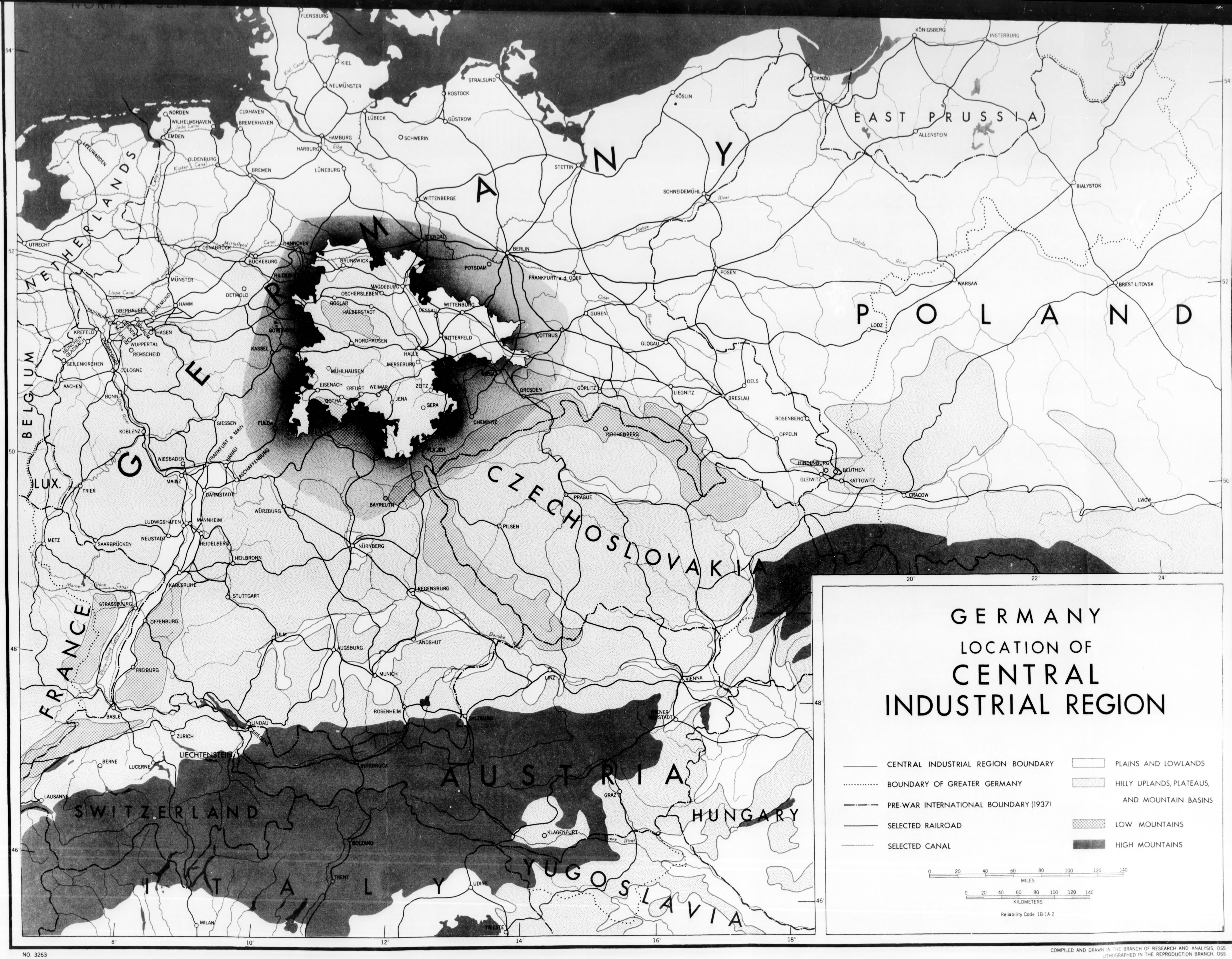
GERMANY


GERMANY
POLAND
EAST PRUSSIA
CZECHOSLOVAKIA
AUSTRIA
HUNGARY
YUGOSLAVIA
ITALY
SWITZERLAND
FRANCE
BELGIUM
NETHERLANDS
LUX.
LIECHTENSTEIN
FLENSBURG
KIEL
Kiel Canal
NEUMÜNSTER
LÜBECK
ROSTOCK
STRALSUND
GÜSTROW
SCHWERIN
KÖNIGSBERG
INSTERBURG
DANZIG
KÖSLIN
ALLENSTEIN
NORDEN
WILHELMSHAVEN
Jade Canal
EMDEN
CUXHAVEN
BREMERHAVEN
HAMBURG
HARBURG
Elbe
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OLDENBURG
Kusten Canal
BREMEN
LÜNEBURG
River
STETTIN
SCHNEIDEMÜHL
BIALYSTOK
WITTENBERGE
STENDAL
Netze
Vistula
UTRECHT
OSNABRÜCK
Mittelland Canal
HANNOVER
BUCKEBURG
BRUNSWICK
BERLIN
POTSDAM
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WARSAW
BREST-LITOVSK
MÜNSTER
Lippe Canal
HILDESHEIM
MAGDEBURG
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WITTENBURG
DESSAU
Oder
GUBEN
DETMOLD
HAMM
DORTMUND
OBERHAUSEN
DUISBURG
ESSEN
BOCHUM
MÜLHEIM
HAGEN
KREFELD
MÜNCHEN GLADBACH
WUPPERTAL
REMSCHEID
GEILENKIRCHEN
COLOGNE
GÖTTINGEN
KASSEL
NORDHAUSEN
BITTERFELD
HALLE
COTTBUS
GLOGAU
LODZ
MÜHLHAUSEN
MERSEBURG
AACHEN
EISENACH
ERFURT
WEIMAR
ZEITZ
DRESDEN
GÖRLITZ
LIEGNITZ
BRESLAU
OELS
BONN
GOTHA
JENA
GERA
CHEMNITZ
REICHENBERG
GIESSEN
FULDA
ROSENBERG
KOBLENZ
FRANKFURT a. MAIN
HANAU
PLAUEN
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WIESBADEN
ASCHAFFENBURG
HINDENBURG
BEUTHEN
GLEIWITZ
KATTOWITZ
MAINZ
TRIER
DARMSTADT
BAYREUTH
PRAGUE
CRACOW
LWOW
WÜRZBURG
LUDWIGSHAFEN
MANNHEIM
PILSEN
METZ
SAARBRÜCKEN
NEUSTADT
HEIDELBERG
NÜRNBERG
HEILBRONN
Marne
Rhine
Canal
KARLSRUHE
REGENSBURG
STUTTGART
STRASSBURG
OFFENBURG
ULM
Danube
LANDSHUT
AUGSBURG
FREIBURG
MUNICH
LINZ
VIENNA
BASLE
ROSENHEIM
SALZBURG
WIENER NEUSTADT
ZURICH
LINDAU
BREGENZ
BERNE
LUCERNE
INNSBRUCK
GRAZ
LAUSANNE
KLAGENFURT
Drava River
BOLZANO
TRENT
UDINE
MILAN
TRIESTE
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14°
16°
18°
20°
22°
24°
CENTRAL INDUSTRIAL REGION BOUNDARY
BOUNDARY OF GREATER GERMANY
PRE-WAR INTERNATIONAL BOUNDARY (1937)
SELECTED RAILROAD
SELECTED CANAL
PLAINS AND LOWLANDS
HILLY UPLANDS, PLATEAUS, AND MOUNTAIN BASINS
LOW MOUNTAINS
HIGH MOUNTAINS
0 20 40 60 80 100 120 140
MILES
0 20 40 60 80 100 120 140
KILOMETERS
Reliability Code 1B-1A-2

GERMANY
LOCATION OF
CENTRAL INDUSTRIAL REGION

NO. 3263
MAY 1, 1944

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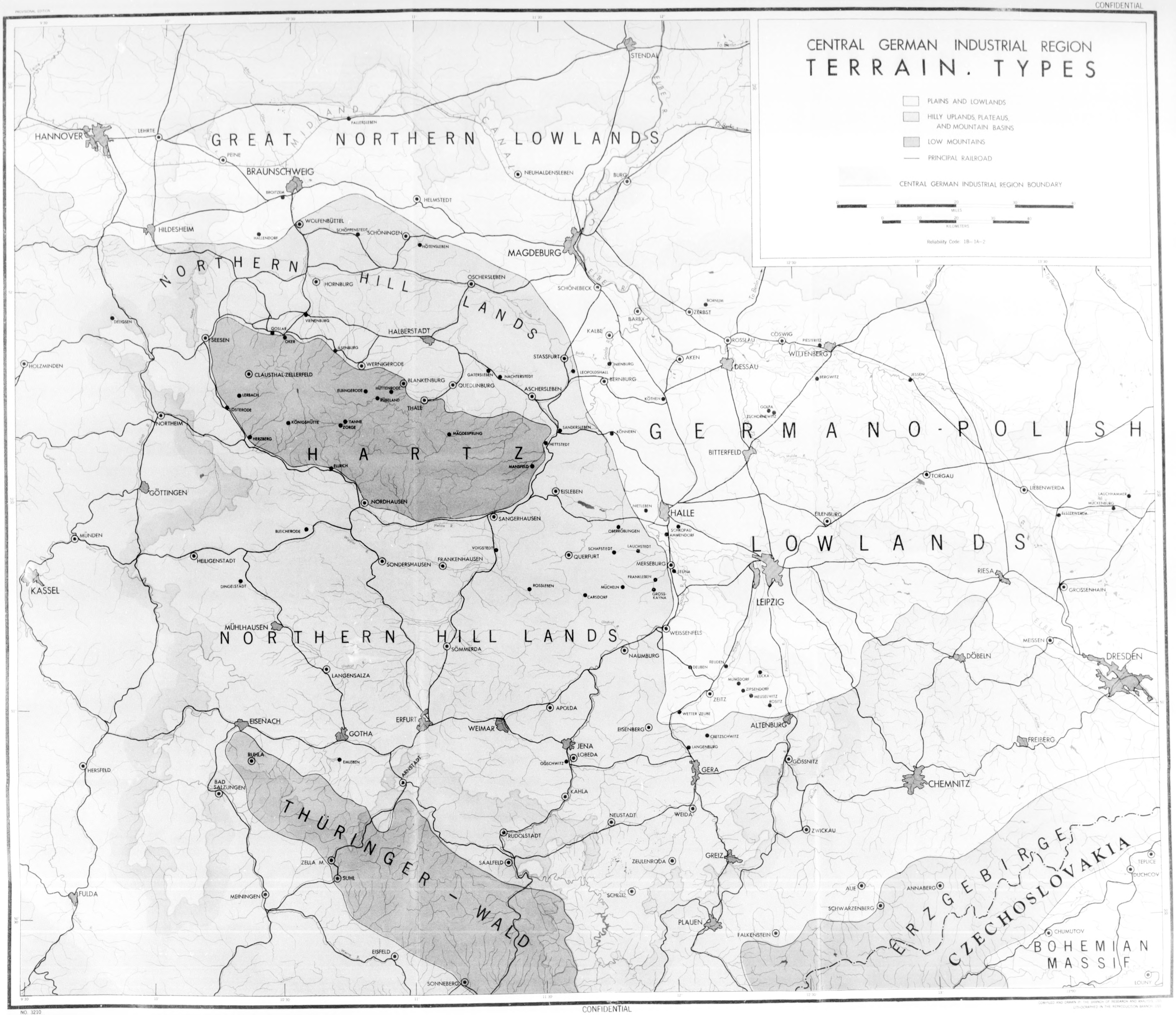


CENTRAL GERMAN INDUSTRIAL REGION
TERRAIN. TYPES

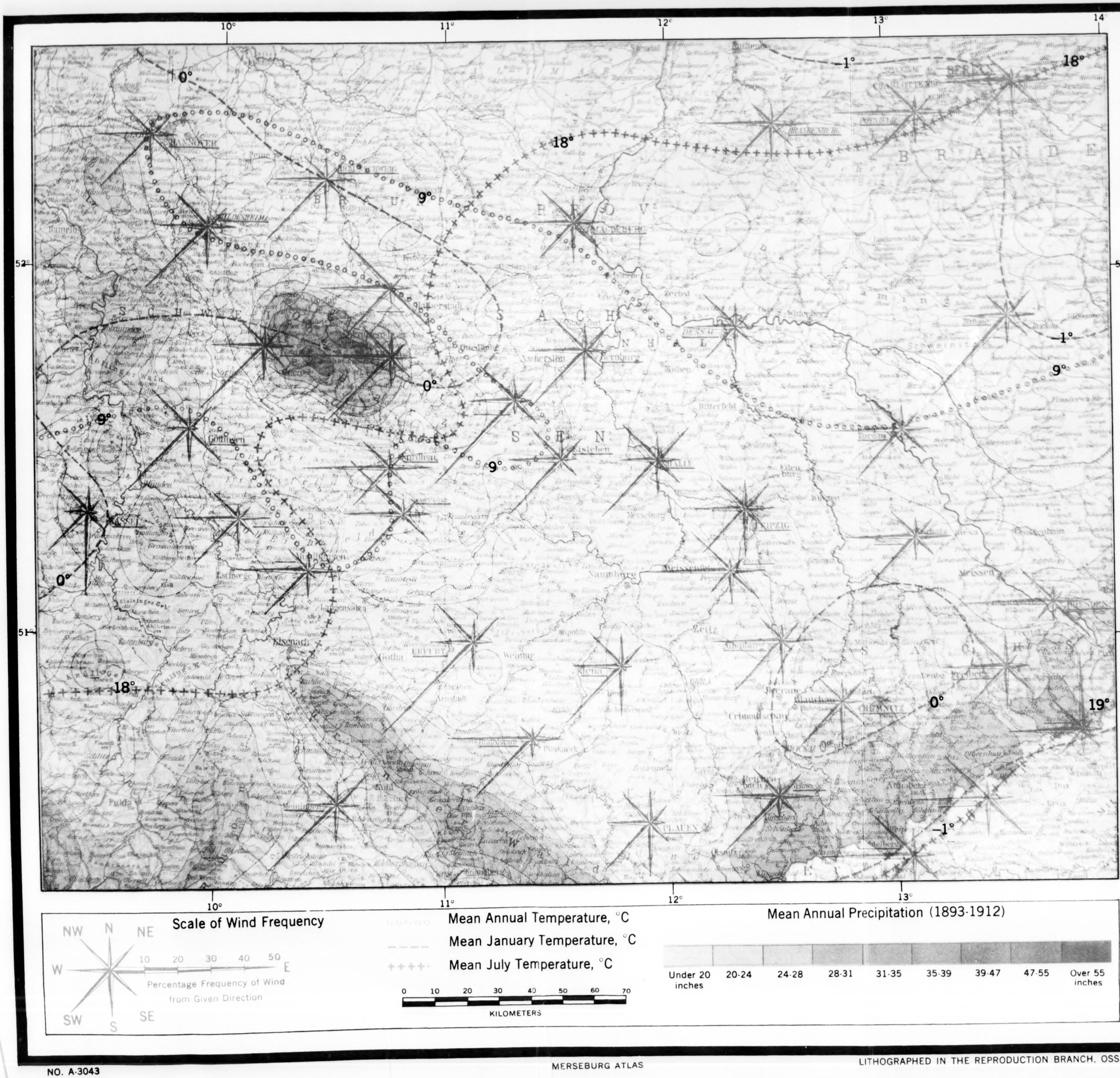
PLAINS AND LOWLANDS
HILLY UPLANDS, PLATEAUS, AND MOUNTAIN BASINS
LOW MOUNTAINS
PRINCIPAL RAILROAD
CENTRAL GERMAN INDUSTRIAL REGION BOUNDARY
0 10 20 30 40
MILES
0 10 20 30 40
KILOMETERS
Reliability Code: 1B–1A–2
GREAT NORTHERN LOWLANDS
NORTHERN HILL LANDS
HARTZ
GERMANO-POLISH LOWLANDS
NORTHERN HILL LANDS
THÜRINGER-WALD
ERZGEBIRGE
CZECHOSLOVAKIA
BOHEMIAN MASSIF
MIDLAND CANAL
ELBE R.
To Berlin
HANNOVER
LEHRTE
PEINE
BRAUNSCHWEIG
FALLERSLEBEN
STENDAL
NEUHALDENSLEBEN
BURG
HELMSTEDT
HILDESHEIM
WOLFENBÜTTEL
SCHÖNINGEN
MAGDEBURG
HORNBURG
OSCHERSLEBEN
SCHÖNEBECK
ZERBST
HALBERSTADT
GOSLAR
VIENENBURG
SEESEN
WERNIGERODE
CLAUSTHAL-ZELLERFELD
BLANKENBURG
QUEDLINBURG
THALE
STASSFURT
ASCHERSLEBEN
BERNBURG
DESSAU
ROSSLAU
CÖSWIG
WITTENBERG
KÖTHEN
HOLZMINDEN
NORTHEIM
HERZBERG
ELLRICH
NORDHAUSEN
MANSFELD
HETTSTEDT
SANDERSLEBEN
BITTERFELD
TORGAU
LIEBENWERDA
GÖTTINGEN
EISLEBEN
SANGERHAUSEN
HALLE
EILENBURG
MÜNDEN
HEILIGENSTADT
SONDERSHAUSEN
FRANKENHAUSEN
QUERFURT
MERSEBURG
LEUNA
LEIPZIG
RIESA
GROSSENHAIN
KASSEL
MÜHLHAUSEN
WEISSENFELS
NAUMBURG
SÖMMERDA
LANGENSALZA
MEISSEN
DÖBELN
DRESDEN
ZEITZ
APOLDA
EISENACH
GOTHA
ERFURT
WEIMAR
JENA
ALTENBURG
FREIBERG
RUHLA
ARNSTADT
GERA
GÖSSNITZ
CHEMNITZ
HERSFELD
BAD SALZUNGEN
KAHLA
WEIDA
ZWICKAU
RUDOLSTADT
NEUSTADT
ZELLA M.
SUHL
SAALFELD
ZEULENRODA
GREIZ
FULDA
MEININGEN
SCHLEIZ
PLAUEN
AUE
ANNABERG
SCHWARZENBERG
FALKENSTEIN
TEPLICE
DUCHCOV
CHUMUTOV
EISFELD
SONNEBERG
LOUNY

NO. 3210
16 MAY 1944

COMPILED AND DRAWN IN THE BRANCH OF RESEARCH AND ANALYSIS, OSS
LITHOGRAPHED IN THE REPRODUCTION BRANCH, OSS

CLIMATIC CONDITIONS OF CENTRAL GERMANY

FREE


10°
11°
12°
13°
14°
52°
51°
0°
9°
18°
-1°
19°
HANNOVER
MAGDEBURG
BERLIN
Göttingen
Eisenach
Gotha
Weimar
Naumburg
Merseburg
Bitterfeld
Zeitz
Meissen
Fulda
Mean Annual Temperature, °C
Mean January Temperature, °C
Mean July Temperature, °C
Scale of Wind Frequency
NW
N
NE
W
E
SW
S
SE
10
20
30
40
50
Percentage Frequency of Wind from Given Direction
0
10
20
30
40
50
60
70
KILOMETERS
Mean Annual Precipitation (1893-1912)
Under 20 inches
20-24
24-28
28-31
31-35
35-39
39-47
47-55
Over 55 inches

NO. A-3043
27 JAN. 1944

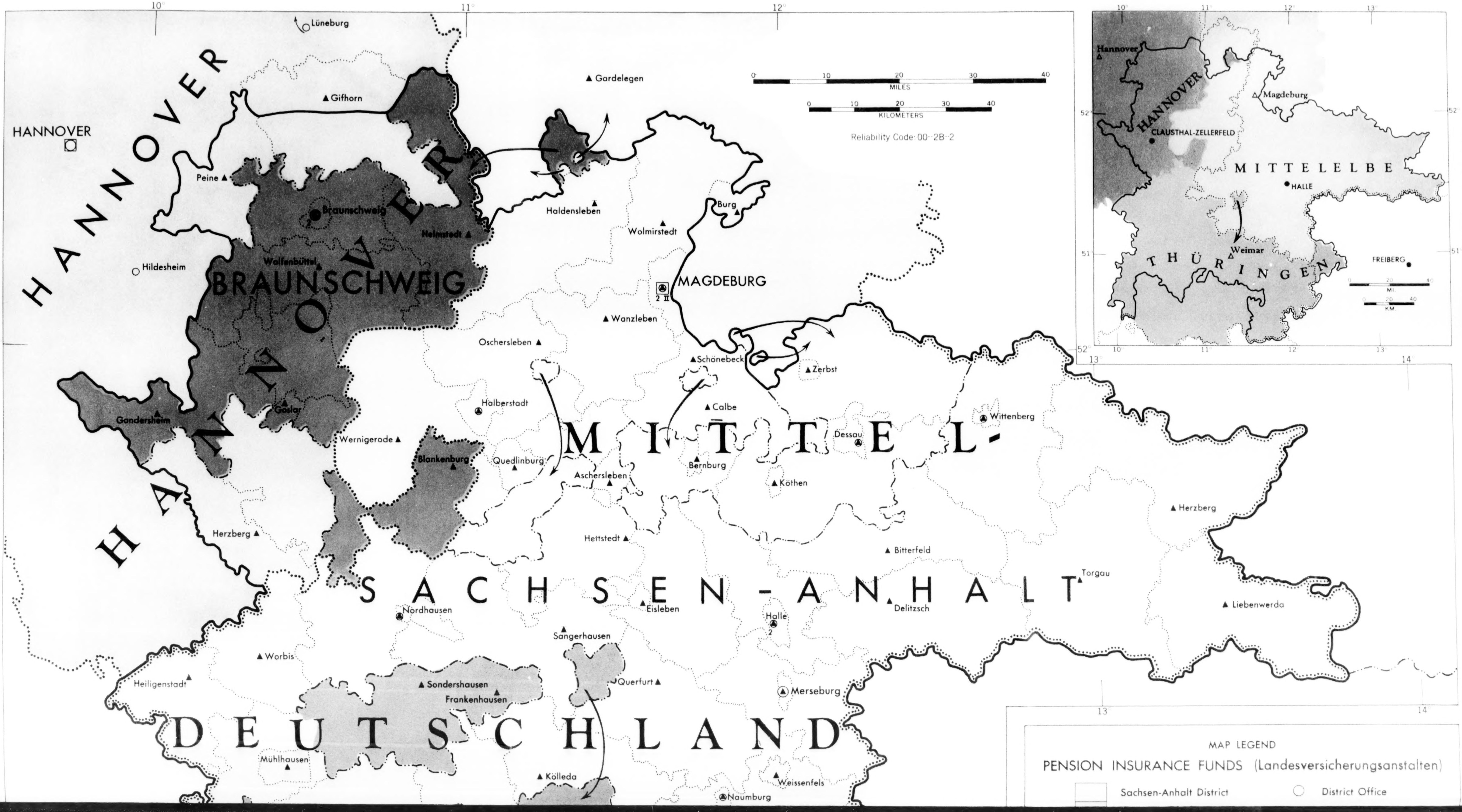
MERSEBURG ATLAS

LITHOGRAPHED IN THE REPRODUCTION BRANCH, OSS

CENTRAL GERMAN INDUSTRIAL REGION

SELECTED ECONOMIC ADMINISTRATIONS

(BASED ON INFORMATION AVAILABLE JANUARY 1944)

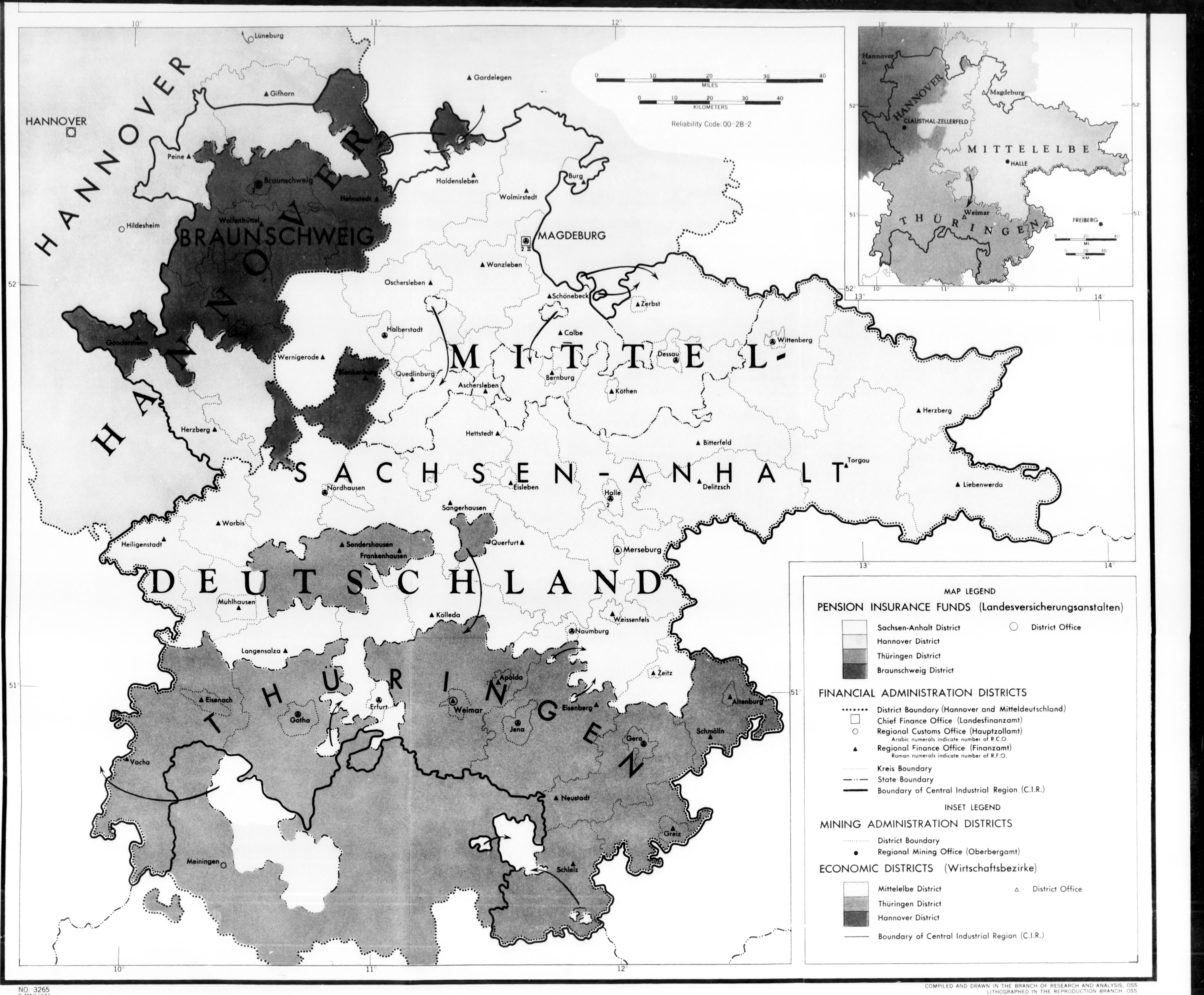

10°
11°
12°
13°
14°
52°
51°
Lüneburg
Gardelegen
Gifhorn
HANNOVER
HANNOVER
Peine
Braunschweig
Helmstedt
Wolfenbüttel
BRAUNSCHWEIG
Hildesheim
Haldensleben
Wolmirstedt
Burg
MAGDEBURG
2 II
Wanzleben
Oschersleben
Schönebeck
Zerbst
Halberstadt
Calbe
Wittenberg
Gandersheim
Goslar
Wernigerode
Blankenburg
Quedlinburg
Aschersleben
Bernburg
Dessau
Köthen
MITTEL-
Herzberg
Hettstedt
Bitterfeld
Herzberg
Torgau
SACHSEN-ANHALT
Nordhausen
Eisleben
Halle
2
Delitzsch
Liebenwerda
Sangerhausen
Worbis
Heiligenstadt
Sondershausen
Frankenhausen
Querfurt
Merseburg
DEUTSCHLAND
Mühlhausen
Kölleda
Weissenfels
Naumburg
0 10 20 30 40
MILES
0 10 20 30 40
KILOMETERS
Reliability Code: 00-2B-2
Hannover
Magdeburg
HANNOVER
CLAUSTHAL-ZELLERFELD
MITTELELBE
HALLE
Weimar
FREIBERG
THÜRINGEN
0 20 40
MI
0 20 40
KM

MAP LEGEND

PENSION INSURANCE FUNDS (Landesversicherungsanstalten)

Sachsen-Anhalt District

○ District Office

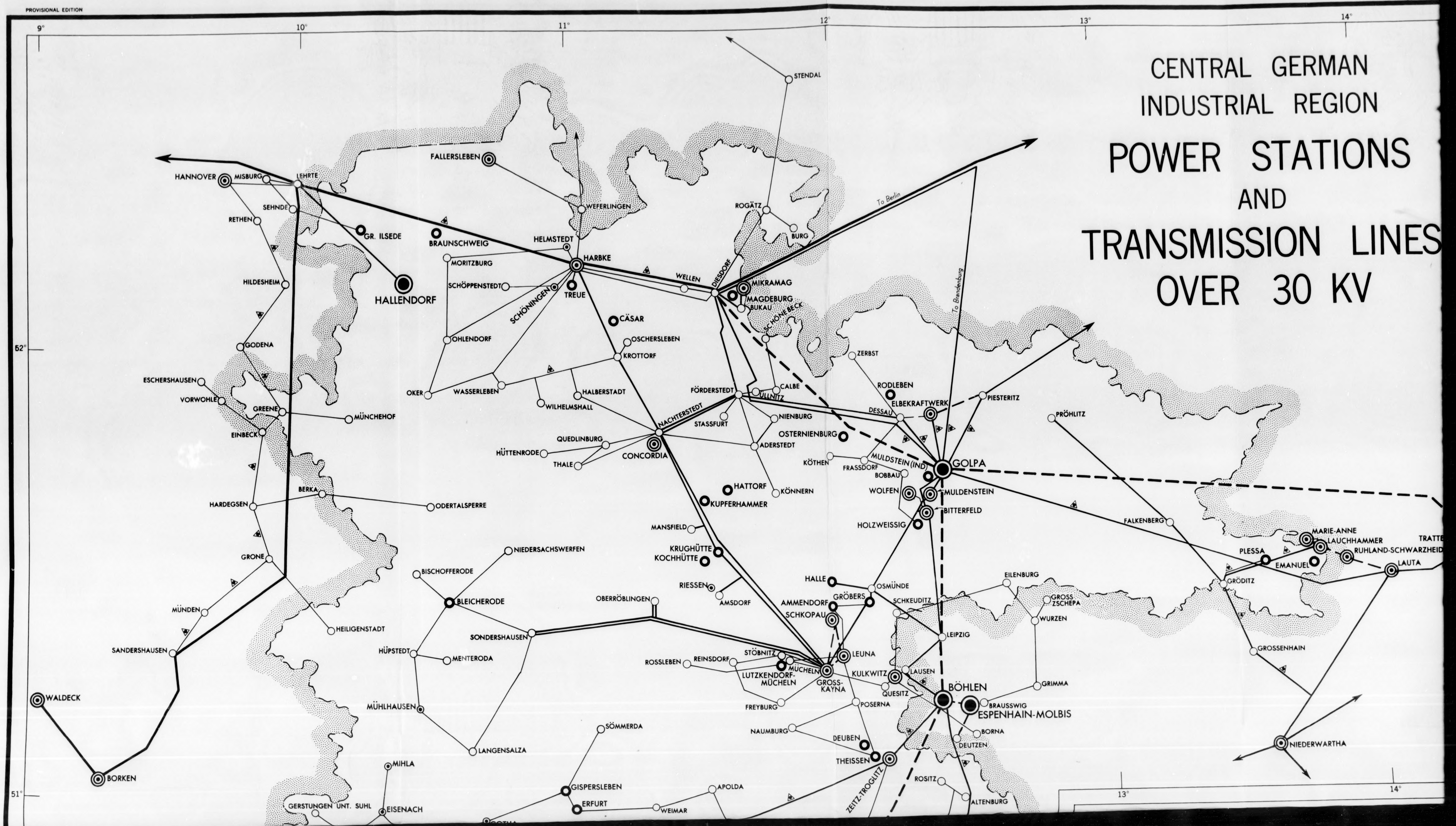

HANNOVER
BRAUNSCHWEIG
MITTEL-
SACHSEN-ANHALT
DEUTSCHLAND
THÜRINGEN
Lüneburg
Gifhorn
Gardelegen
HANNOVER
Peine
Braunschweig
Helmstedt
Haldensleben
Wolmirstedt
Burg
Wolfenbüttel
Hildesheim
MAGDEBURG
2 II
Wanzleben
Oschersleben
Schönebeck
Zerbst
Gandersheim
Halberstadt
Calbe
Wittenberg
Wernigerode
Blankenburg
Quedlinburg
Aschersleben
Bernburg
Dessau
Köthen
Herzberg
Hettstedt
Bitterfeld
Torgau
Nordhausen
Eisleben
Halle
2
Delitzsch
Liebenwerda
Sangerhausen
Worbis
Heiligenstadt
Querfurt
Sondershausen
Frankenhausen
Merseburg
Mühlhausen
Kölleda
Weissenfels
Naumburg
Langensalza
Zeitz
Apolda
Eisenach
Gotha
Erfurt
Weimar
Eisenberg
Jena
Altenburg
Schmölln
Gera
Vacha
Neustadt
Greiz
Meiningen
Schleiz
10°
11°
12°
13°
14°
52°
51°
0 10 20 30 40
MILES
0 10 20 30 40
KILOMETERS
Reliability Code: 00-2B-2
Hannover
Magdeburg
HANNOVER
CLAUSTHAL-ZELLERFELD
MITTELELBE
HALLE
Weimar
THÜRINGEN
FREIBERG
0 20 40
MI.
0 20 40
KM
MAP LEGEND
PENSION INSURANCE FUNDS (Landesversicherungsanstalten)
Sachsen-Anhalt District
Hannover District
Thüringen District
Braunschweig District
○ District Office
FINANCIAL ADMINISTRATION DISTRICTS
District Boundary (Hannover and Mitteldeutschland)
□ Chief Finance Office (Landesfinanzamt)
○ Regional Customs Office (Hauptzollamt)
Arabic numerals indicate number of R.C.O.
▲ Regional Finance Office (Finanzamt)
Roman numerals indicate number of R.F.O.
Kreis Boundary
State Boundary
Boundary of Central Industrial Region (C.I.R.)
INSET LEGEND
MINING ADMINISTRATION DISTRICTS
District Boundary
● Regional Mining Office (Oberbergamt)
ECONOMIC DISTRICTS (Wirtschaftsbezirke)
Mittelelbe District
Thüringen District
Hannover District
△ District Office
Boundary of Central Industrial Region (C.I.R.)

NO. 3265
8 MAY 1944

COMPILED AND DRAWN IN THE BRANCH OF RESEARCH AND ANALYSIS, OSS
LITHOGRAPHED IN THE REPRODUCTION BRANCH, OSS

PROVISIONAL EDITION

CON



CENTRAL GERMAN INDUSTRIAL REGION
POWER STATIONS AND TRANSMISSION LINES OVER 30 KV

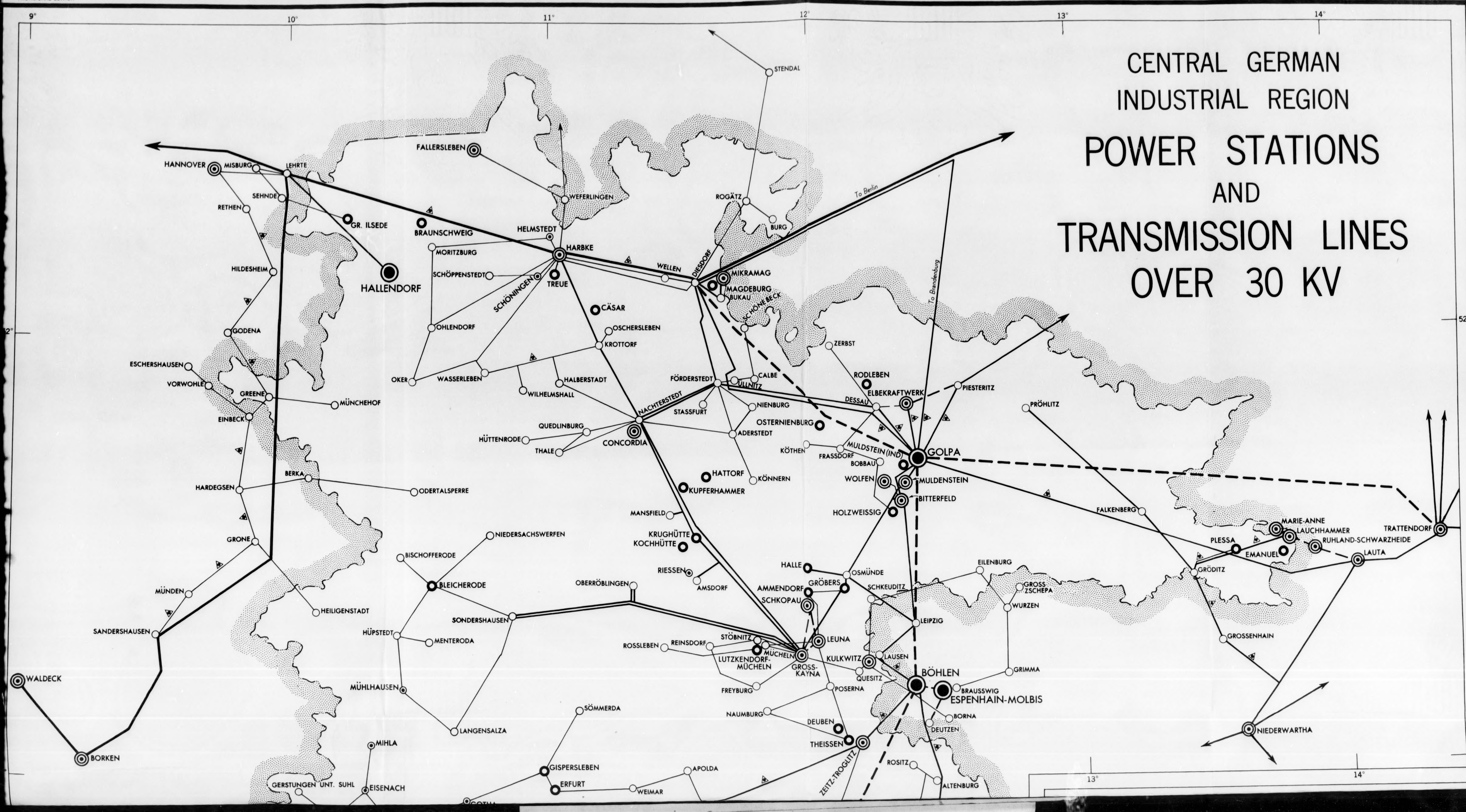
9°
10°
11°
12°
13°
14°
52°
51°
STENDAL
FALLERSLEBEN
HANNOVER
MISBURG
LEHRTE
SEHNDE
RETHEN
GR. ILSEDE
BRAUNSCHWEIG
WEFERLINGEN
ROGÄTZ
BURG
To Berlin
HELMSTEDT
HARBKE
MORITZBURG
HALLENDORF
HILDESHEIM
SCHÖPPENSTEDT
SCHÖNINGEN
TREUE
WELLEN
DIESDORF
MIKRAMAG
MAGDEBURG
BUKAU
SCHÖNE BECK
To Brandenburg
CÄSAR
OSCHERSLEBEN
OHLENDORF
KROTTORF
GODENA
ZERBST
RODLEBEN
ESCHERSHAUSEN
VORWOHLE
OKER
WASSERLEBEN
HALBERSTADT
WILHELMSHALL
FÖRDERSTEDT
CALBE
ULLNITZ
ELBEKRAFTWERK
PIESTERITZ
PRÖHLITZ
GREENE
MÜNCHEHOF
EINBECK
NACHTERSTEDT
STASSFURT
NIENBURG
DESSAU
OSTERNIENBURG
QUEDLINBURG
HÜTTENRODE
THALE
CONCORDIA
ADERSTEDT
KÖTHEN
FRASSDORF
MULDSTEIN (IND)
GOLPA
BOBBAU
HATTORF
KÖNNERN
WOLFEN
MULDENSTEIN
BERKA
HARDEGSEN
ODERTALSPERRE
KUPFERHAMMER
BITTERFELD
HOLZWEISSIG
FALKENBERG
MANSFIELD
MARIE-ANNE
LAUCHHAMMER
TRATTE
RUHLAND-SCHWARZHEID
NIEDERSACHSWERFEN
KRUGHÜTTE
KOCHHÜTTE
PLESSA
EMANUEL
LAUTA
GRONE
BISCHOFFERODE
EILENBURG
HALLE
OSMÜNDE
GRÖDITZ
RIESSEN
AMSDORF
BLEICHERODE
OBERRÖBLINGEN
AMMENDORF
GRÖBERS
SCHKEUDITZ
GROSS ZSCHEPA
SCHKOPAU
WURZEN
MÜNDEN
HEILIGENSTADT
SONDERSHAUSEN
LEIPZIG
SANDERSHAUSEN
HÜPSTEDT
MENTERODA
STÖBNITZ
LEUNA
GROSSENHAIN
ROSSLEBEN
REINSDORF
MÜCHELN
LUTZKENDORF-MÜCHELN
GROSS-KAYNA
KULKWITZ
LAUSEN
GRIMMA
WALDECK
QUESITZ
BÖHLEN
BRAUSSWIG
ESPENHAIN-MOLBIS
MÜHLHAUSEN
FREYBURG
POSERNA
SÖMMERDA
NAUMBURG
BORNA
DEUBEN
NIEDERWARTHA
LANGENSALZA
THEISSEN
DEUTZEN
BORKEN
MIHLA
ZEITZ-TROGLITZ
ROSITZ
GISPERSLEBEN
APOLDA
ERFURT
GERSTUNGEN UNT. SUHL
EISENACH
WEIMAR
ALTENBURG
GOTHA
13°
14°

PROVISIONAL EDITION

CONFIDENTIAL

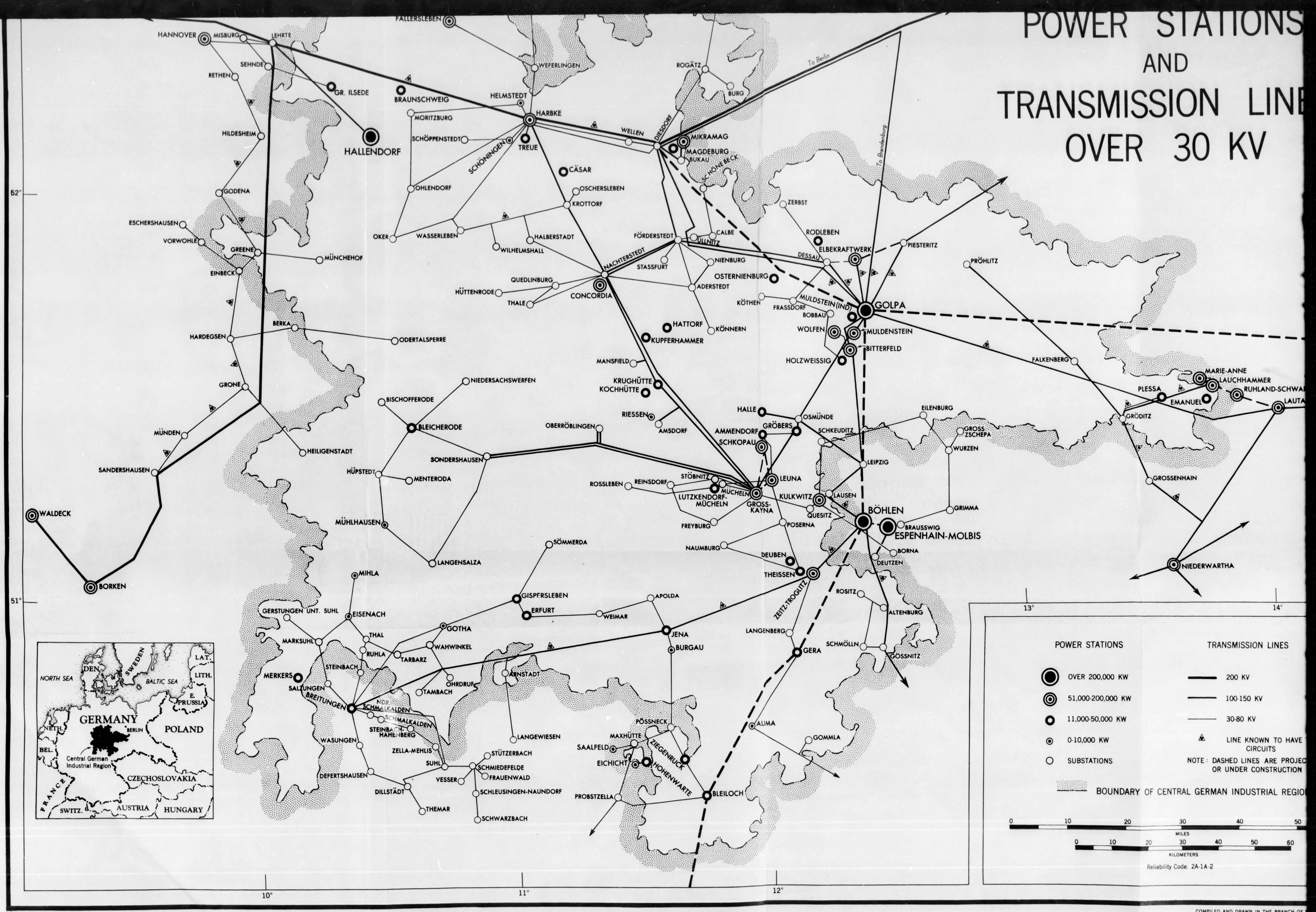
CENTRAL GERMAN INDUSTRIAL REGION

POWER STATIONS AND TRANSMISSION LINES OVER 30 KV



9°
10°
11°
12°
13°
14°
52°
51°
STENDAL
FALLERSLEBEN
HANNOVER
MISBURG
LEHRTE
SEHNDE
RETHEN
GR. ILSEDE
BRAUNSCHWEIG
WEFERLINGEN
ROGÄTZ
BURG
To Berlin
HELMSTEDT
HARBKE
MORITZBURG
HILDESHEIM
HALLENDORF
SCHÖPPENSTEDT
SCHÖNINGEN
TREUE
WELLEN
DIESDORF
MIKRAMAG
MAGDEBURG
BUKAU
SCHÖNEBECK
To Brandenburg
CÄSAR
OSCHERSLEBEN
KROTTORF
GODENA
ESCHERSHAUSEN
OHLENDORF
ZERBST
VORWOHLE
OKER
WASSERLEBEN
HALBERSTADT
FÖRDERSTEDT
ÜLLNITZ
CALBE
RODLEBEN
ELBEKRAFTWERK
PIESTERITZ
GREENE
WILHELMSHALL
NACHTERSTEDT
DESSAU
PRÖHLITZ
MÜNCHEHOF
EINBECK
STASSFURT
NIENBURG
OSTERNIENBURG
QUEDLINBURG
ADERSTEDT
HÜTTENRODE
CONCORDIA
KÖTHEN
MULDSTEIN (IND)
GOLPA
THALE
FRASSDORF
BOBBAU
WOLFEN
MULDENSTEIN
HATTORF
KÖNNERN
BERKA
HARDEGSEN
ODERTALSPERRE
KUPFERHAMMER
BITTERFELD
HOLZWEISSIG
MANSFIELD
FALKENBERG
NIEDERSACHSWERFEN
KRUGHÜTTE
KOCHHÜTTE
MARIE-ANNE
LAUCHHAMMER
TRATTENDORF
GRONE
BISCHOFFERODE
PLESSA
RUHLAND-SCHWARZHEIDE
EMANUEL
LAUTA
HALLE
EILENBURG
RIESSEN
OSMÜNDE
BLEICHERODE
OBERRÖBLINGEN
AMSDORF
AMMENDORF
GRÖBERS
SCHKEUDITZ
GRÖDITZ
GROSS ZSCHEPA
MÜNDEN
SCHKOPAU
WURZEN
HEILIGENSTADT
SONDERSHAUSEN
LEUNA
LEIPZIG
SANDERSHAUSEN
HÜPSTEDT
STÖBNITZ
MENTERODA
ROSSLEBEN
REINSDORF
MÜCHELN
KULKWITZ
GROSSENHAIN
LUTZKENDORF-MÜCHELN
GROSS-KAYNA
LAUSEN
WALDECK
BÖHLEN
GRIMMA
QUESITZ
FREYBURG
BRAUSSWIG
ESPENHAIN-MOLBIS
MÜHLHAUSEN
POSERNA
SÖMMERDA
NAUMBURG
BORNA
DEUBEN
NIEDERWARTHA
LANGENSALZA
DEUTZEN
THEISSEN
BORKEN
MIHLA
ZEITZ-TROGLITZ
ROSITZ
GISPERSLEBEN
APOLDA
ALTENBURG
GERSTUNGEN UNT. SUHL
EISENACH
ERFURT
WEIMAR
GOTHA

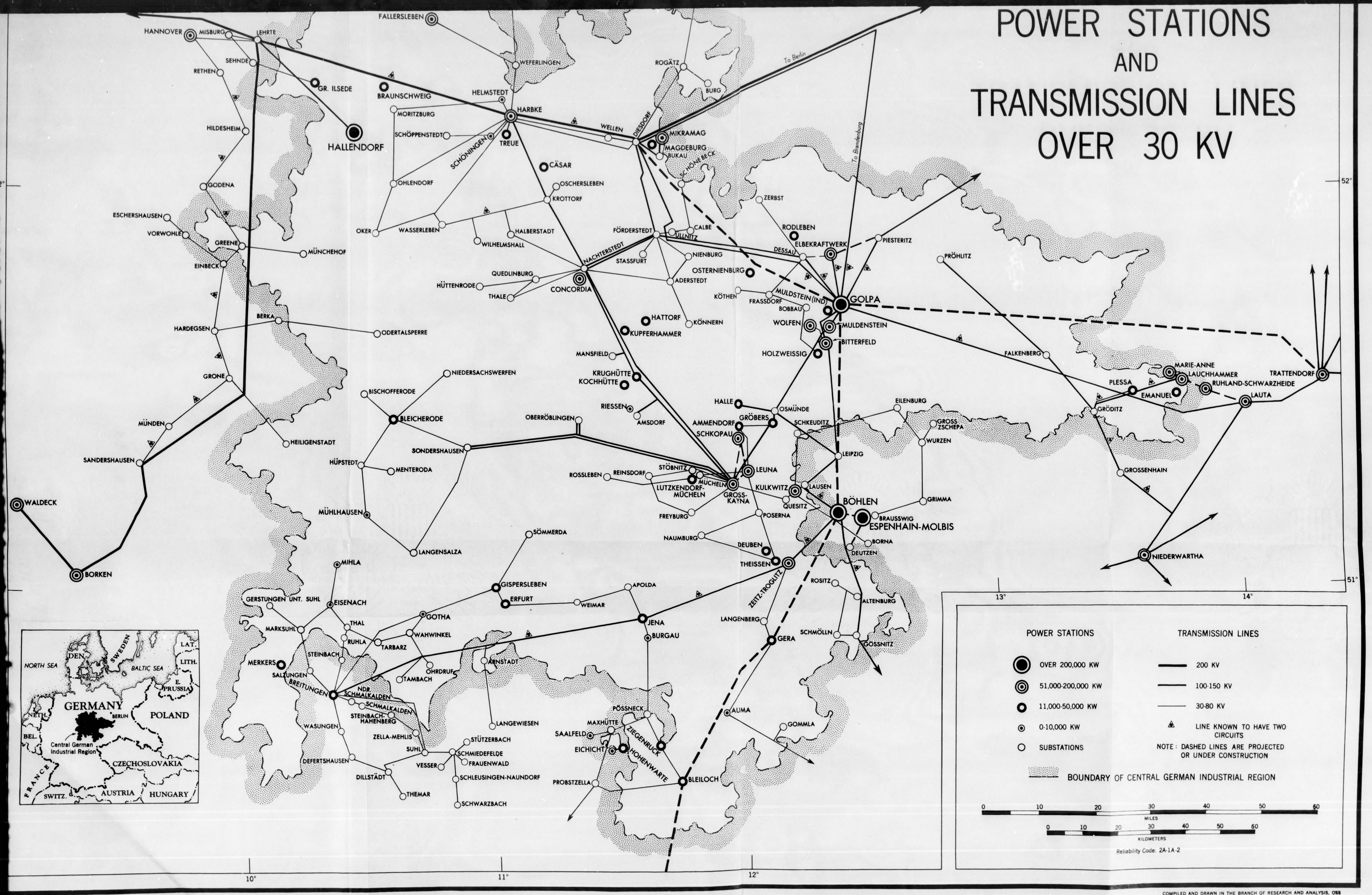
POWER STATIONS AND TRANSMISSION LINE OVER 30 KV


FALLERSLEBEN
HANNOVER
MISBURG
LEHRTE
SEHNDE
RETHEN
GR. ILSEDE
BRAUNSCHWEIG
HILDESHEIM
HALLENDORF
WEFERLINGEN
To Berlin
ROGÄTZ
BURG
HELMSTEDT
MORITZBURG
HARBKE
SCHÖPPENSTEDT
SCHÖNINGEN
TREUE
WELLEN
DIESDORF
MIKRAMAG
MAGDEBURG
BUKAU
SCHÖNEBECK
To Brandenburg
CÄSAR
OHLENDORF
OSCHERSLEBEN
KROTTORF
GODENA
ESCHERSHAUSEN
VORWOHLE
OKER
WASSERLEBEN
HALBERSTADT
WILHELMSHALL
FÖRDERSTEDT
CALBE
ZERBST
RODLEBEN
ELBEKRAFTWERK
PIESTERITZ
DESSAU
GREENE
MÜNCHEHOF
EINBECK
NACHTERSTEDT
STASSFURT
UNSELBURG
NIENBURG
PRÖHLITZ
QUEDLINBURG
HÜTTENRODE
THALE
CONCORDIA
ADERSTEDT
OSTERNIENBURG
KÖTHEN
MULDSTEIN (IND)
FRASSDORF
BOBBAU
GOLPA
HATTORF
KÖNNERN
WOLFEN
MULDENSTEIN
BITTERFELD
HARDEGSEN
BERKA
ODERTALSPERRE
KUPFERHAMMER
HOLZWEISSIG
MANSFIELD
FALKENBERG
MARIE-ANNE
LAUCHHAMMER
RUHLAND-SCHWA
PLESSA
EMANUEL
LAUTA
GRONE
NIEDERSACHSWERFEN
KRUGHÜTTE
KOCHHÜTTE
BISCHOFFERODE
BLEICHERODE
HALLE
OSMÜNDE
EILENBURG
GRÖDITZ
RIESSEN
AMSDORF
AMMENDORF
GRÖBERS
SCHKEUDITZ
GROSS ZSCHEPA
MÜNDEN
HEILIGENSTADT
OBERRÖBLINGEN
SCHKOPAU
WURZEN
SANDERSHAUSEN
SONDERSHAUSEN
LEIPZIG
HÜPSTEDT
MENTERODA
STÖBNITZ
REINSDORF
ROSSLEBEN
MÜCHELN
LEUNA
LUTZKENDORF-MÜCHELN
GROSS-KAYNA
KULKWITZ
LAUSEN
QUESITZ
GROSSENHAIN
WALDECK
MÜHLHAUSEN
BÖHLEN
BRAUSSWIG
ESPENHAIN-MOLBIS
GRIMMA
FREYBURG
POSERNA
NAUMBURG
BORNA
SÖMMERDA
LANGENSALZA
DEUBEN
THEISSEN
DEUTZEN
NIEDERWARTHA
BORKEN
MIHLA
ZEITZ-TROGLITZ
GISPERSLEBEN
APOLDA
ROSITZ
ALTENBURG
GERSTUNGEN UNT. SUHL
EISENACH
ERFURT
WEIMAR
GOTHA
JENA
LANGENBERG
MARKSUHL
THAL
WAHWINKEL
BURGAU
SCHMÖLLN
RUHLA
TARBARZ
GERA
GÖSSNITZ
STEINBACH
MERKERS
SALZUNGEN
BREITUNGEN
ARNSTADT
OHRDRUF
TAMBACH
NDR. SCHMALKALDEN
SCHMALKALDEN
STEINBACH HAHENBERG
AUMA
GOMMLA
WASUNGEN
ZELLA-MEHLIS
SUHL
STÜTZERBACH
SCHMIEDEFELDE
FRAUENWALD
VESSER
LANGEWIESEN
PÖSSNECK
MAXHÜTTE
SAALFELD
ZIEGENRUCK
EICHICHT
HOHENWARTE
DEFERTSHAUSEN
DILLSTÄDT
SCHLEUSINGEN-NAUNDORF
THEMAR
SCHWARZBACH
PROBSTZELLA
BLEILOCH
52°
51°
10°
11°
12°
13°
14°
NORTH SEA
DEN.
SWEDEN
BALTIC SEA
LAT.
LITH.
E. PRUSSIA
GERMANY
BERLIN
NETH.
BEL.
Central German Industrial Region
POLAND
CZECHOSLOVAKIA
FRANCE
SWITZ.
AUSTRIA
HUNGARY
POWER STATIONS
OVER 200,000 KW
51,000-200,000 KW
11,000-50,000 KW
0-10,000 KW
SUBSTATIONS
TRANSMISSION LINES
200 KV
100-150 KV
30-80 KV
LINE KNOWN TO HAVE CIRCUITS
NOTE: DASHED LINES ARE PROJEC OR UNDER CONSTRUCTION
BOUNDARY OF CENTRAL GERMAN INDUSTRIAL REGIO
0 10 20 30 40 50
MILES
0 10 20 30 40 50 60
KILOMETERS
Reliability Code: 2A-1A-2

NO. 3209
17 APRIL 1944

COMPILED AND DRAWN IN THE BRANCH OF
LITHOGRAPHED IN THE

POWER STATIONS AND TRANSMISSION LINES OVER 30 KV

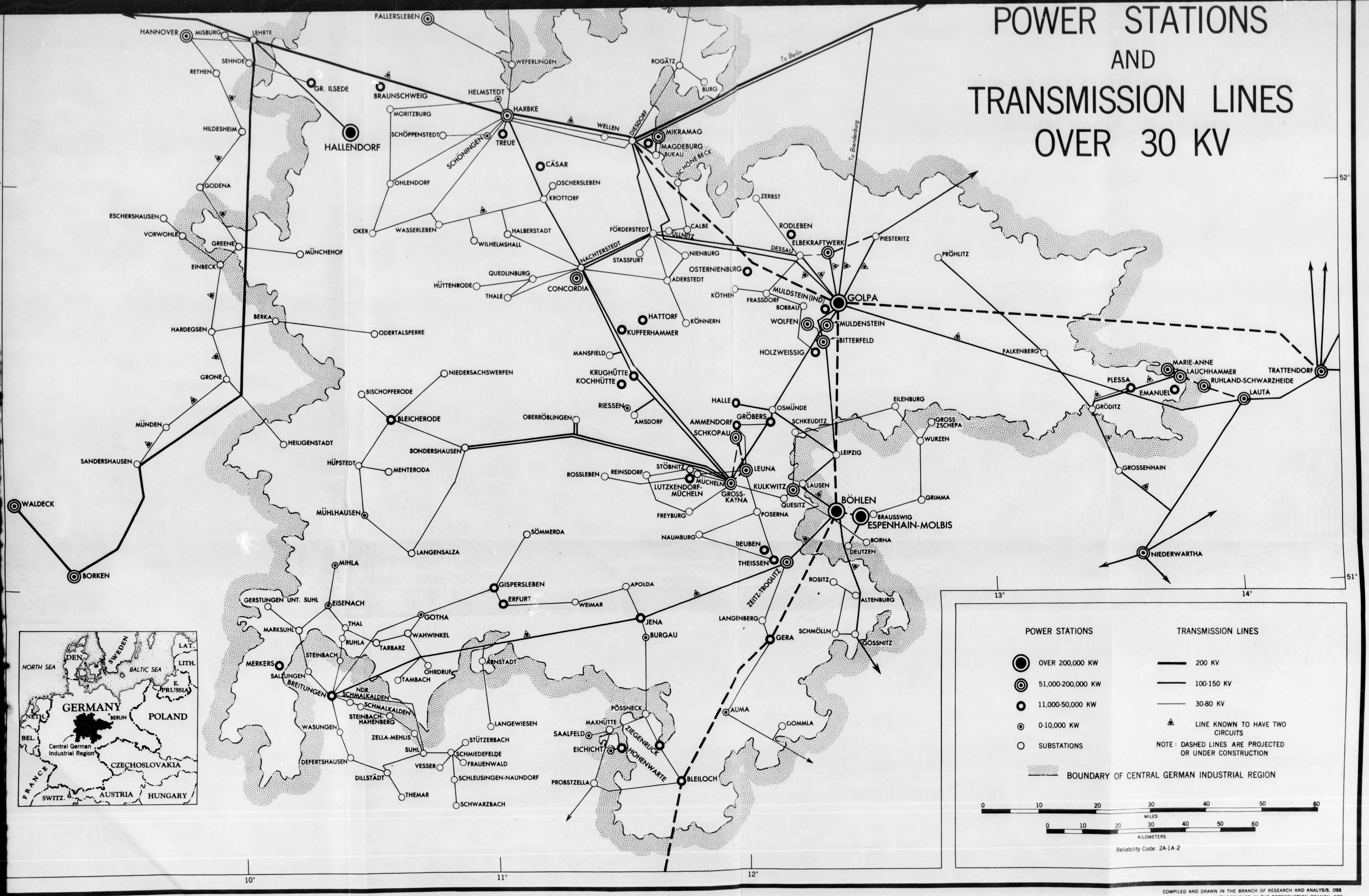


HANNOVER
MISBURG
LEHRTE
SEHNDE
RETHEN
GR. ILSEDE
HILDESHEIM
GODENA
ESCHERSHAUSEN
VORWOHLE
GREENE
EINBECK
MÜNCHEHOF
HARDEGSEN
BERKA
GRONE
MÜNDEN
SANDERSHAUSEN
HEILIGENSTADT
WALDECK
BORKEN
FALLERSLEBEN
WEFERLINGEN
BRAUNSCHWEIG
HALLENDORF
HELMSTEDT
MORITZBURG
HARBKE
SCHÖPPENSTEDT
SCHÖNINGEN
TREUE
CÄSAR
OHLENDORF
OKER
WASSERLEBEN
WILHELMSHALL
HALBERSTADT
OSCHERSLEBEN
KROTTORF
WELLEN
DIESDORF
MIKRAMAG
MAGDEBURG
BUKAU
SCHÖNEBECK
ROGÄTZ
BURG
To Berlin
To Brandenburg
ZERBST
RODLEBEN
ELBEKRAFTWERK
PIESTERITZ
DESSAU
CALBE
FÖRDERSTEDT
ULLNITZ
STASSFURT
NIENBURG
ADERSTEDT
NACHTERSTEDT
QUEDLINBURG
HÜTTENRODE
THALE
CONCORDIA
OSTERNIENBURG
KÖTHEN
FRASSDORF
MULDSTEIN (IND.)
BOBBAU
GOLPA
WOLFEN
MULDENSTEIN
BITTERFELD
HOLZWEISSIG
KÖNNERN
HATTORF
KUPFERHAMMER
ODERTALSPERRE
MANSFIELD
KRUGHÜTTE
KOCHHÜTTE
NIEDERSACHSWERFEN
BISCHOFFERODE
BLEICHERODE
OBERRÖBLINGEN
RIESSEN
AMSDORF
HALLE
OSMÜNDE
AMMENDORF
GRÖBERS
SCHKOPAU
SCHKEUDITZ
SONDERSHAUSEN
HÜPSTEDT
MENTERODA
LEUNA
LEIPZIG
ROSSLEBEN
REINSDORF
STÖBNITZ
MÜCHELN
LUTZKENDORF-MÜCHELN
GROSS-KAYNA
KULKWITZ
LAUSEN
QUESITZ
FREYBURG
POSERNA
BÖHLEN
BRAUSSWIG
ESPENHAIN-MOLBIS
MÜHLHAUSEN
LANGENSALZA
NAUMBURG
DEUBEN
THEISSEN
ZEITZ-TROGLITZ
BORNA
DEUTZEN
SÖMMERDA
MIHLA
GISPERSLEBEN
ERFURT
WEIMAR
APOLDA
JENA
BURGAU
ROSITZ
ALTENBURG
LANGENBERG
SCHMÖLLN
GÖSSNITZ
GERA
GERSTUNGEN UNT. SUHL
EISENACH
GOTHA
MARKSUHL
THAL
WAHWINKEL
RUHLA
TARBARZ
STEINBACH
MERKERS
SALZUNGEN
BREITUNGEN
TAMBACH
OHRDRUF
ARNSTADT
NDR. SCHMALKALDEN
SCHMALKALDEN
STEINBACH-HAHENBERG
ZELLA-MEHLIS
WASUNGEN
SUHL
STÜTZERBACH
SCHMIEDEFELDE
FRAUENWALD
VESSER
SCHLEUSINGEN-NAUNDORF
DEFERTSHAUSEN
DILLSTÄDT
THEMAR
SCHWARZBACH
LANGEWIESEN
PÖSSNECK
MAXHÜTTE
SAALFELD
EICHICHT
ZIEGENRÜCK
HOHENWARTE
PROBSTZELLA
BLEILOCH
AUMA
GOMMLA
PRÖHLITZ
FALKENBERG
MARIE-ANNE
LAUCHHAMMER
RUHLAND-SCHWARZHEIDE
PLESSA
EMANUEL
LAUTA
TRATTENDORF
EILENBURG
GRÖDITZ
GROSS ZSCHEPA
WURZEN
GROSSENHAIN
GRIMMA
NIEDERWARTHA
10°
11°
12°
13°
14°
51°
52°
NORTH SEA
DEN.
SWEDEN
BALTIC SEA
LAT.
LITH.
E. PRUSSIA
GERMANY
BERLIN
POLAND
NETH.
BEL.
Central German Industrial Region
CZECHOSLOVAKIA
FRANCE
SWITZ.
AUSTRIA
HUNGARY
POWER STATIONS
● OVER 200,000 KW
◎ 51,000-200,000 KW
○ 11,000-50,000 KW
⊙ 0-10,000 KW
○ SUBSTATIONS
TRANSMISSION LINES
200 KV
100-150 KV
30-80 KV
▲ LINE KNOWN TO HAVE TWO CIRCUITS
NOTE: DASHED LINES ARE PROJECTED OR UNDER CONSTRUCTION
BOUNDARY OF CENTRAL GERMAN INDUSTRIAL REGION
0 10 20 30 40 50 60
MILES
0 10 20 30 40 50 60
KILOMETERS
Reliability Code: 2A-1A-2

NO. 3209
17 APRIL 1944

COMPILED AND DRAWN IN THE BRANCH OF RESEARCH AND ANALYSIS, OSS
LITHOGRAPHED IN THE REPRODUCTION BRANCH, OSS

POWER STATIONS
AND
TRANSMISSION LINES
OVER 30 KV


FALLERSLEBEN
HANNOVER
MISBURG
LEHRTE
SEHNDE
RETHEN
GR. ILSEDE
BRAUNSCHWEIG
HELMSTEDT
WEFERLINGEN
ROGÄTZ
BURG
To Berlin
MORITZBURG
HARBKE
SCHÖPPENSTEDT
SCHÖNINGEN
TREUE
WELLEN
DIESDORF
MIKRAMAG
MAGDEBURG
BUKAU
SCHÖNEBECK
To Brandenburg
HILDESHEIM
HALLENDORF
CÄSAR
OSCHERSLEBEN
KROTTORF
OHLENDORF
GODENA
ZERBST
ESCHERSHAUSEN
VORWOHLE
OKER
WASSERLEBEN
HALBERSTADT
WILHELMSHALL
FÖRDERSTEDT
CALBE
UTLNITZ
RODLEBEN
ELBEKRAFTWERK
PIESTERITZ
DESSAU
PRÖHLITZ
GREENE
MÜNCHEHOF
EINBECK
NACHTERSTEDT
STASSFURT
NIENBURG
OSTERNIENBURG
QUEDLINBURG
HÜTTENRODE
THALE
CONCORDIA
ADERSTEDT
KÖTHEN
FRASSDORF
MULDSTEIN (IND)
BOBBAU
GOLPA
HATTORF
KÖNNERN
WOLFEN
MULDENSTEIN
BERKA
HARDEGSEN
ODERTALSPERRE
KUPFERHAMMER
BITTERFELD
MANSFIELD
HOLZWEISSIG
FALKENBERG
MARIE-ANNE
LAUCHHAMMER
TRATTENDORF
PLESSA
RUHLAND-SCHWARZHEIDE
EMANUEL
LAUTA
GRONE
NIEDERSACHSWERFEN
KRUGHÜTTE
KOCHHÜTTE
BISCHOFFERODE
HALLE
OSMÜNDE
EILENBURG
GRÖDITZ
RIESSEN
BLEICHERODE
OBERRÖBLINGEN
AMMENDORF
GRÖBERS
AMSDORF
SCHKOPAU
SCHKEUDITZ
GROSS ZSCHEPA
MÜNDEN
HEILIGENSTADT
WURZEN
SONDERSHAUSEN
LEIPZIG
SANDERSHAUSEN
HÜPSTEDT
MENTERODA
STÖBNITZ
LEUNA
ROSSLEBEN
REINSDORF
MÜCHELN
LUTZKENDORF-MÜCHELN
GROSS-KAYNA
KULKWITZ
LAUSEN
GROSSENHAIN
GRIMMA
QUESITZ
BÖHLEN
ESPENHAIN-MOLBIS
BRAUSSWIG
WALDECK
MÜHLHAUSEN
FREYBURG
POSERNA
NAUMBURG
BORNA
DEUTZEN
NIEDERWARTHA
DEUBEN
THEISSEN
ZEITZ-TROGLITZ
LANGENSALZA
SÖMMERDA
BORKEN
MIHLA
GISPERSLEBEN
ERFURT
APOLDA
ROSITZ
ALTENBURG
EISENACH
WEIMAR
GERSTUNGEN UNT. SUHL
LANGENBERG
GOTHA
THAL
JENA
MARKSUHL
RUHLA
WAHWINKEL
BURGAU
SCHMÖLLN
GÖSSNITZ
TARBARZ
GERA
STEINBACH
MERKERS
SALZUNGEN
OHRDRUF
ARNSTADT
BREITUNGEN
TAMBACH
NDR. SCHMALKALDEN
SCHMALKALDEN
STEINBACH-HAHENBERG
LANGEWIESEN
PÖSSNECK
AUMA
MAXHÜTTE
GOMMLA
ZIEGENRUCK
WASUNGEN
ZELLA-MEHLIS
STÜTZERBACH
SAALFELD
SUHL
SCHMIEDEFELDE
EICHICHT
HOHENWARTE
DEFERTSHAUSEN
VESSER
FRAUENWALD
DILLSTÄDT
SCHLEUSINGEN-NAUNDORF
PROBSTZELLA
BLEILOCH
THEMAR
SCHWARZBACH
52°
51°
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12°
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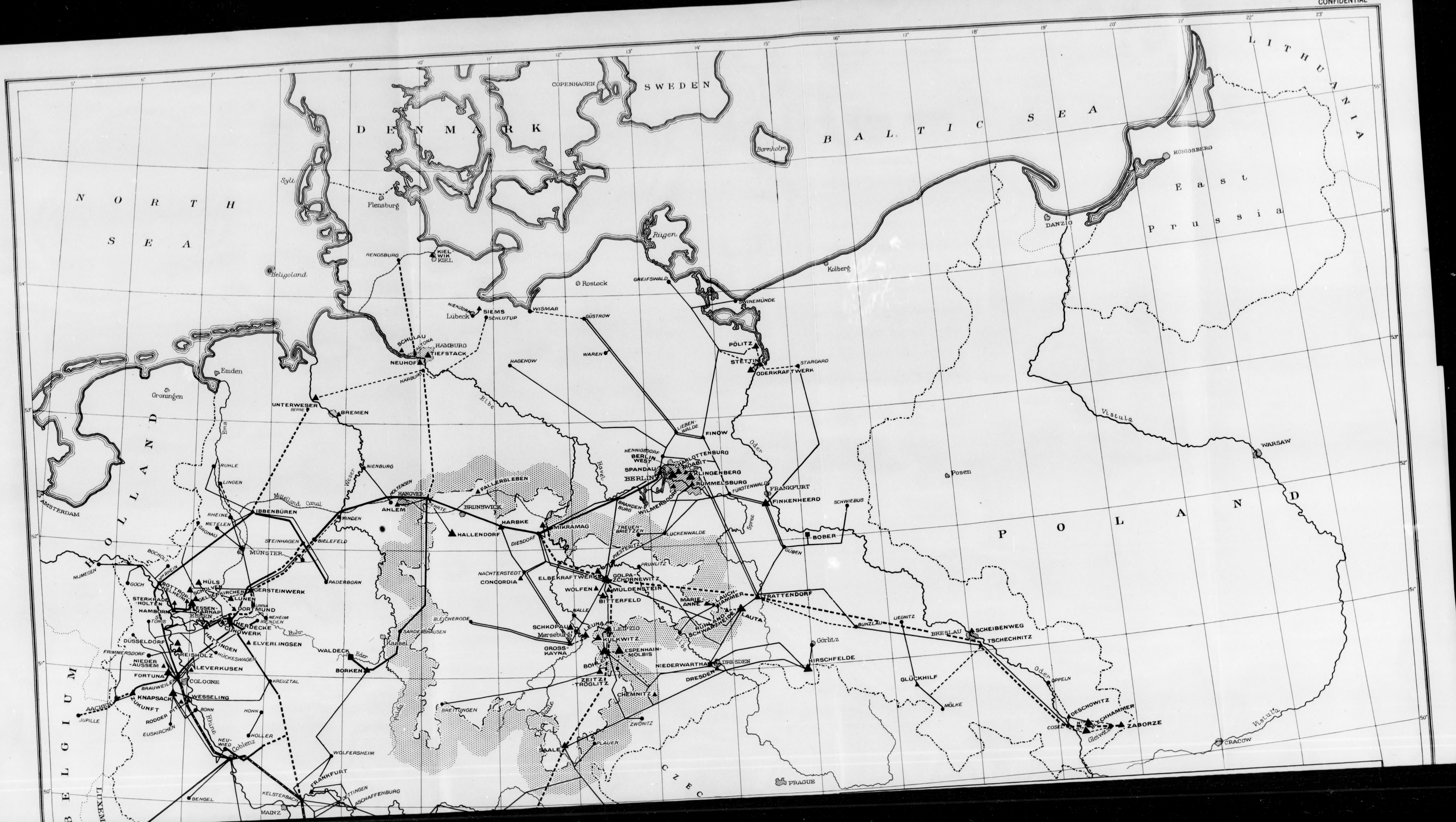
NORTH SEA
DEN.
SWEDEN
BALTIC SEA
LAT.
LITH.
E. PRUSSIA
NETH.
GERMANY
BERLIN
POLAND
BEL.
Central German Industrial Region
CZECHOSLOVAKIA
FRANCE
SWITZ.
AUSTRIA
HUNGARY
POWER STATIONS
● OVER 200,000 KW
◎ 51,000-200,000 KW
○ 11,000-50,000 KW
⊙ 0-10,000 KW
○ SUBSTATIONS
TRANSMISSION LINES
200 KV
100-150 KV
30-80 KV
▲ LINE KNOWN TO HAVE TWO CIRCUITS
NOTE: DASHED LINES ARE PROJECTED OR UNDER CONSTRUCTION
▨ BOUNDARY OF CENTRAL GERMAN INDUSTRIAL REGION
0 10 20 30 40 50 60
MILES
0 10 20 30 40 50 60
KILOMETERS
Reliability Code: 2A-1A-2

NO. 3209
17 APRIL 1944

COMPILED AND DRAWN IN THE BRANCH OF RESEARCH AND ANALYSIS, OSS
LITHOGRAPHED IN THE REPRODUCTION BRANCH, OSS


NORTH SEA
DENMARK
SWEDEN
COPENHAGEN
BALTIC SEA
LITHUANIA
East Prussia
POLAND
HOLLAND
BELGIUM
LUXEMB
CZEC
Bornholm
Rügen
Sylt
Heligoland
Flensburg
KONIGSBERG
DANZIG
Kolberg
WARSAW
Posen
CRACOW
PRAGUE
AMSTERDAM
Groningen
Emden
Vistula
Oder
Elbe
Weser
Ems
Rhine
Ruhr
Eder
Havel
Spree
Mittelland Canal
RENDSBURG
KIEL
WIK
KIEL
Lübeck
NIENDORF
SIEMS
SCHLUTUP
WISMAR
Rostock
GÜSTROW
GREIFSWALD
SWINEMÜNDE
WAREN
HAGENOW
PÖLITZ
STETTIN
ODERKRAFTWERK
STARGARD
SCHULAU
ALTONA
HAMBURG
TIEFSTACK
NEUHOF
HARBURG
UNTERWESER
BERNE
BREMEN
LIEBENWALDE
FINOW
HENNIGSDORF
BERLIN WEST
SPANDAU
BERLIN
CHARLOTTENBURG
MOABIT
KLINGENBERG
RUMMELSBURG
WILMERSDORF
BRANDENBURG
FÜRSTENWALDE
FRANKFURT
FINKENHEERD
SCHWIEBUS
BOBER
GUBEN
TREUENBRIETZEN
LUCKENWALDE
NIENBURG
HOLTENSEN
HANOVER
AHLEM
LEHRTE
FALLERSLEBEN
BRUNSWICK
HALLENDORF
HARBKE
MIKRAMAG
DIESDORF
RUHLE
LINGEN
RHEINE
METELEN
GRONAU
IBBENBÜREN
MINDEN
STEINHAGEN
BIELEFELD
MÜNSTER
PADERBORN
BOCHOLT
NIJMEGEN
GOCH
HÜLS
BOTTROP
WELHEIM
SCHOLVEN
GELSENKIRCHEN
GERSTEINWERK
STERKRADE-HOLTEN
HAMBORN
ESSEN-KARNAP
LÜNEN
DORTMUND
UNNA
ESSEN
NEHEIM
HERDECKE
CUNOWERK
HATTINGEN
ELVERLINGSEN
HÜCKESWAGEN
DÜSSELDORF
FRIMMERSDORF
NIEDER AUSSEM
REISHOLZ
LEVERKUSEN
FORTUNA
BRAUWEILER
COLOGNE
KNAPSACK
WESSELING
ZUKUNFT
AACHEN
JUPILLE
RODDER PIT
BONN
EUSKIRCHEN
HOHN
HOLLER
NEUWIED
Coblenz
KREUZTAL
WALDECK
BORKEN
Kassel
SANDERSHAUSEN
BLEICHERODE
WOLFERSHEIM
FRANKFURT
KELSTERBACH
DETTINGEN
ASCHAFFENBURG
MAINZ
BENGEL
Fulda
BREITUNGEN
NACHTERSTEDT
CONCORDIA
ELBEKRAFTWERK
PIESTERITZ
PRUHLITZ
GOLPA-ZSCHORNEWITZ
WOLFEN
MULDENSTEIN
BITTERFELD
HALLE
SCHKOPAU
Merseburg
LEUNA
LEIPZIG
GROSS-KAYNA
KULKWITZ
ESPENHAIN-MÖLBIS
BÖHLEN
ZEITZ
TRÖGLITZ
CHEMNITZ
ZWÖNITZ
PLAUEN
SAALE
Saale
MARIE ANNE
LAUCHHAMMER
RUHLAND-SCHWARZHEIDE
LAUTA
TRATTENDORF
NIEDERWARTHA
DRESDEN
Görlitz
HIRSCHFELDE
BUNZLAU
LIEGNITZ
GLÜCKHILF
MÖLKE
BRESLAU
SCHEIBENWEG
TSCHECHNITZ
OPPELN
DESCHOWITZ
BLECHHAMMER
COSEL
Gleiwitz
ZABORZE
5°
6°
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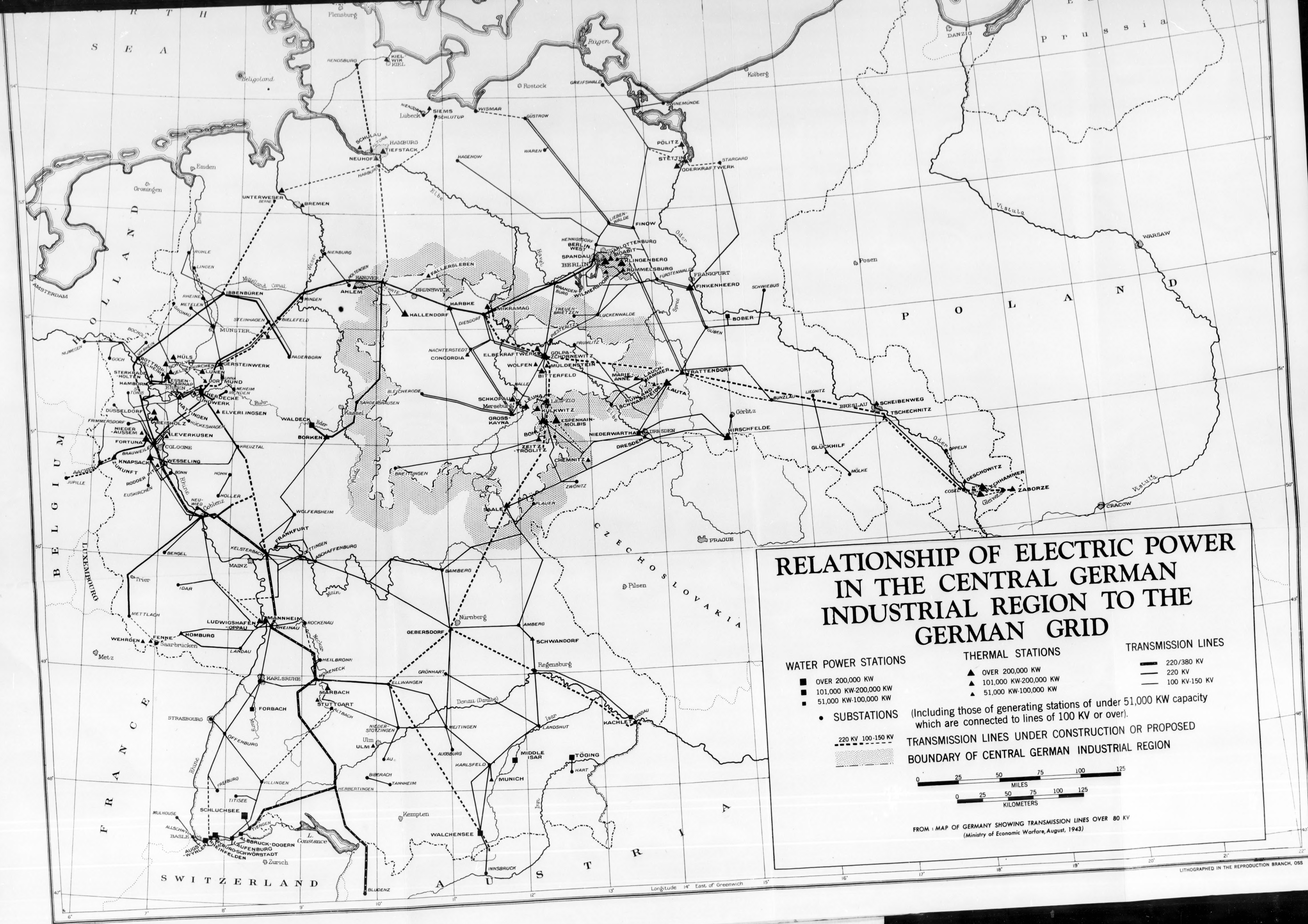
NORTH SEA
HOLLAND
BELGIUM
LUXEMBOURG
FRANCE
SWITZERLAND
AUSTRIA
CZECHOSLOVAKIA
POLAND
East Prussia
Heligoland
Flensburg
RENDSBURG
KIEL
Rügen
Rostock
GREIFSWALD
SWINEMÜNDE
Kolberg
DANZIG
LUBECK
SIEMS
SCHLUTUP
WISMAR
GÜSTROW
SCHULAU
HAMBURG
TIEFSTACK
NEUHOF
WAREN
HAGENOW
PÖLITZ
STETTIN
STARGARD
ODERKRAFTWERK
Emden
Groningen
UNTERWESER
BREMEN
AMSTERDAM
LIEBENWALDE
FINOW
BERLIN
SPANDAU
CHARLOTTENBURG
MOABIT
KLINGENBERG
RUMMELSBURG
WILMERSDORF
FÜRSTENWALDE
FRANKFURT
FINKENHEERD
Posen
WARSAW
Vistula
NIENBURG
HANOVER
AHLEM
FALLERSLEBEN
BRUNSWICK
HALLENDORF
HARBKE
MIKRAMAG
LUCKENWALDE
SCHWIEBUS
BOBER
GUBEN
IBBENBÜREN
MINDEN
BIELEFELD
PADERBORN
MÜNSTER
Mittelland Canal
Elbe
Weser
Havel
Oder
Spree
Rhine
Main
Neckar
Donau (Danube)
Isar
Inn
NACHTERSTEDT
CONCORDIA
ELBEKRAFTWERK
GOLPA-ZSCHORNEWITZ
MULDENSTEIN
WOLFEN
BITTERFELD
TRATTENDORF
LAUCHHAMMER
LAUTA
MARIE-ANNE
BUNZLAU
LIEGNITZ
BRESLAU
SCHEIBENWEG
TSCHECHNITZ
HÜLS
GERSTEINWERK
LÜNEN
DORTMUND
ESSEN
HERDECKE
ELVERINGSEN
DÜSSELDORF
NIEDER-AUSSEM
FORTUNA
LEVERKUSEN
COLOGNE
KNAPSACK
WESSELING
AACHEN
BONN
KREUZTAL
WALDECK
BORKEN
Kassel
SCHKOPAU
LEUNA
LEIPZIG
KULKWITZ
Merseburg
GROSS-KAYNA
ESPENHAIN-MÖLBIS
BÖHLEN
ZEITZ
TRÖGLITZ
NIEDERWARTHA
DRESDEN
HIRSCHFELDE
Görlitz
GLÜCKHILF
MÖLKE
OPPELN
DESCHOWITZ
CHORZÓW
ZABORZE
Gleiwitz
COSEL
CRACOW
CHEMNITZ
ZWÖNITZ
PLAUEN
SAALE
BRETTINGEN
WÖLFERSHEIM
Coblenz
FRANKFURT
KELSTERBACH
DETTINGEN
ASCHAFFENBURG
BENGEL
MAINZ
Trier
IDAR
PRAGUE
Pilsen
BAMBERG
METTLACH
LUDWIGSHAFEN-OPPAU
MANNHEIM
RHEINAU
ROCKENAU
Nürnberg
GEBERSDORF
AMBERG
SCHWANDORF
WEHRDEN
FENNE
HOMBURG
Saarbrucken
LANDAU
Metz
HEILBRONN
KARLSRUHE
MARBACH
STUTTGART
ELLWANGEN
Regensburg
STRASBOURG
FORBACH
OFFENBURG
NIEDER-STOTZINGEN
MEITINGEN
LANDSHUT
KACHLET
PASSAU
Ulm
AUGSBURG
KARLSFELD
MIDDLE ISAR
TÖGING
HART
MUNICH
FREIBURG
VILLINGEN
BIBERACH
TANNHEIM
HERBERTINGEN
TITISEE
SCHLUCHSEE
MULHOUSE
BASLE
Kempten
WALCHENSEE
INNSBRUCK
BLUDENZ
L. Constance
ALBBRUCK-DOGERN
LAUFENBURG
RYBURG-SCHWÖRSTADT
AUGST-WYHLEN
RHEINFELDEN
Zurich
Longitude 14° East of Greenwich
6°
7°
8°
9°
10°
11°
12°
13°
15°
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18°
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47°
48°
49°
50°
51°
52°
53°
54°

RELATIONSHIP OF ELECTRIC POWER IN THE CENTRAL GERMAN INDUSTRIAL REGION TO THE GERMAN GRID

WATER POWER STATIONS

- ■ OVER 200,000 KW
- ■ 101,000 KW-200,000 KW
- ▪ 51,000 KW-100,000 KW

THERMAL STATIONS

- ▲ OVER 200,000 KW
- ▲ 101,000 KW-200,000 KW
- ▲ 51,000 KW-100,000 KW

TRANSMISSION LINES

- 220/380 KV
- 220 KV
- 100 KV-150 KV

● SUBSTATIONS (Including those of generating stations of under 51,000 KW capacity which are connected to lines of 100 KV or over).

220 KV 100-150 KV TRANSMISSION LINES UNDER CONSTRUCTION OR PROPOSED

▨ BOUNDARY OF CENTRAL GERMAN INDUSTRIAL REGION

0 25 50 75 100 125 MILES

0 25 50 75 100 125 KILOMETERS

FROM : MAP OF GERMANY SHOWING TRANSMISSION LINES OVER 80 KV
(Ministry of Economic Warfare, August, 1943)

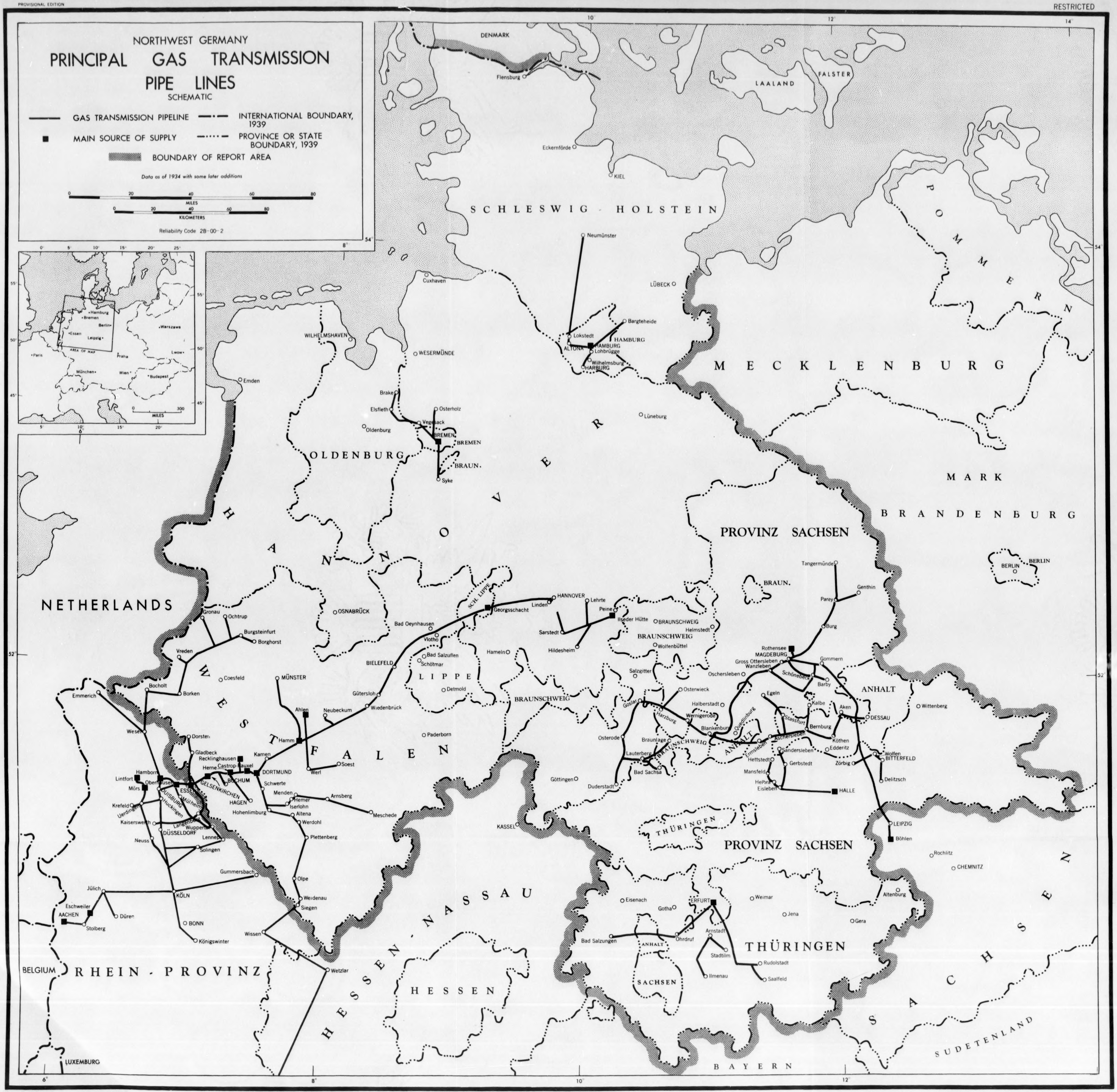
LITHOGRAPHED IN THE REPRODUCTION BRANCH, OSS

NO. A-3211 – RA, OSS
11 APRIL 1944

NORTHWEST GERMANY

PRINCIPAL GAS TRANSMISSION PIPE LINES

SCHEMATIC


GAS TRANSMISSION PIPELINE
MAIN SOURCE OF SUPPLY
INTERNATIONAL BOUNDARY, 1939
PROVINCE OR STATE BOUNDARY, 1939
BOUNDARY OF REPORT AREA
0 20 40 60 80 MILES
0 20 40 60 80 KILOMETERS
Paris
Essen
Hamburg
Bremen
Berlin
Leipzig
Warszawa
Praha
Lwow
München
Wien
Budapest
AREA OF MAP
0 300 MILES
DENMARK
Flensburg
LAALAND
FALSTER
Eckernförde
KIEL
SCHLESWIG - HOLSTEIN
POMMERN
Neumünster
Cuxhaven
LÜBECK
Bargteheide
Lokstedt
ALTONA
HAMBURG
Lohbrügge
Wilhelmsburg
HARBURG
WILHELMSHAVEN
WESERMÜNDE
MECKLENBURG
Emden
Brake
Elsfleth
Osterholz
Vegesack
Oldenburg
BREMEN
BRAUN.
Syke
Lüneburg
OLDENBURG
HANNOVER
MARK BRANDENBURG
PROVINZ SACHSEN
Tangermünde
BERLIN
Genthin
NETHERLANDS
Gronau
Ochtrup
Burgsteinfurt
Borghorst
OSNABRÜCK
SCH. LIPPE
Georgsschacht
Linden
Lehrte
Peine
Ilseder Hütte
Sarstedt
Hildesheim
Bad Oeynhausen
Vlotho
BRAUNSCHWEIG
Helmstedt
Wolfenbüttel
Parey
Burg
Rothensee
MAGDEBURG
Gross Ottersleben
Wanzleben
Schönebeck
Gommern
Barby
Vreden
Coesfeld
Bad Salzuflen
Schötmar
LIPPE
Detmold
Hameln
Salzgitter
Oschersleben
ANHALT
Emmerich
Bocholt
Borken
WESTFALEN
MÜNSTER
BIELEFELD
Gütersloh
Wiedenbrück
Ahlen
Neubeckum
Hamm
Paderborn
Osterwieck
Halberstadt
Goslar
Harzburg
Wernigerode
Blankenburg
Quedlinburg
Egeln
Kalbe
Stassfurt
Aschersleben
Bernburg
Aken
DESSAU
Wittenberg
Köthen
Edderitz
Wolfen
BITTERFELD
Zörbig
Delitzsch
Wesel
Dorsten
Gladbeck
Recklinghausen
Herne
Castrop-Rauxel
Kamen
Soest
Werl
DORTMUND
BOCHUM
GELSENKIRCHEN
ESSEN
Hamborn
Oberhausen
Linfort
Mörs
DUISBURG
Mülheim
Krefeld
Uerdingen
Kaiserswerth
Hückingen
Langenberg
Wuppertal
Lennep
DÜSSELDORF
Neuss
Solingen
Schwerte
HAGEN
Hohenlimburg
Menden
Hemer
Iserlohn
Altena
Werdohl
Arnsberg
Meschede
Plettenberg
Osterode
Lauterberg
Braunlage
Bad Sachsa
Ermsleben
Hettstedt
Sandersleben
Gerbstedt
Mansfeld
Helbra
Eisleben
HALLE
LEIPZIG
Böhlen
Göttingen
Duderstadt
KASSEL
THÜRINGEN
Gummersbach
Olpe
Weidenau
Siegen
KÖLN
Jülich
Eschweiler
AACHEN
Stolberg
Düren
BONN
Königswinter
Wissen
Wetzlar
HESSEN - NASSAU
HESSEN
Eisenach
Gotha
ERFURT
Weimar
Jena
Gera
Altenburg
Rochlitz
CHEMNITZ
Bad Salzungen
Ohrdruf
Arnstadt
Stadtilm
Ilmenau
Rudolstadt
Saalfeld
SACHSEN
BELGIUM
RHEIN - PROVINZ
LUXEMBURG
BAYERN
SUDETENLAND
6°
8°
10°
12°
14°
52°
54°

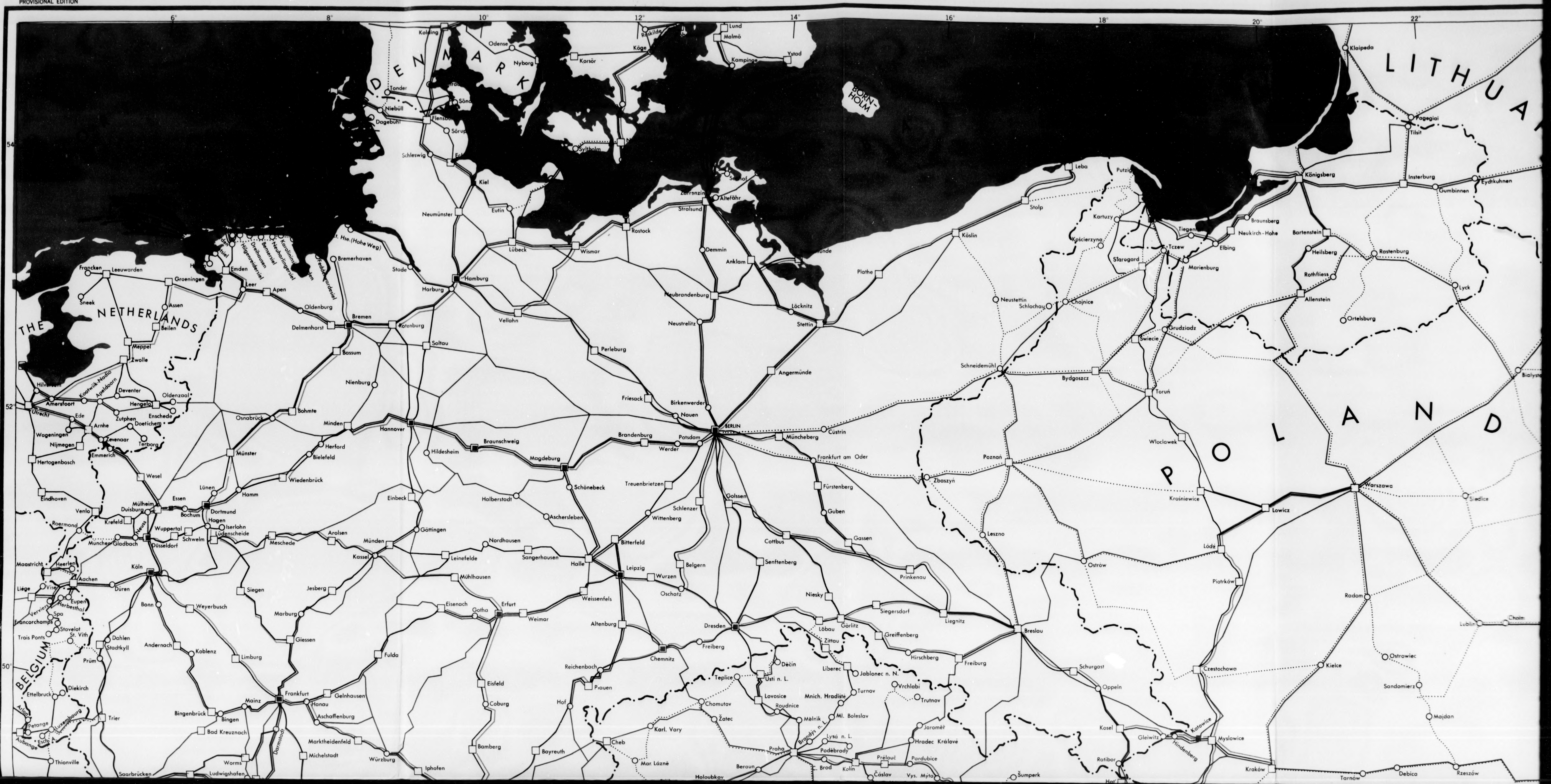
Data as of 1934 with some later additions

Reliability Code 2B-00-2

NO. 3079
12 APRIL 1944

COMPILED AND DRAWN IN THE BRANCH OF RESEARCH AND ANALYSIS, OSS
LITHOGRAPHED IN THE REPRODUCTION BRANCH, OSS

PROVISIONAL EDITION



6°
8°
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18°
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22°
54°
52°
50°
DENMARK
LITHUANIA
THE NETHERLANDS
BELGIUM
POLAND
BORNHOLM
Kolding
Odense
Nyborg
Korsör
Køge
Roskilde
Lund
Malmö
Kampinge
Ystad
Tonder
Niebüll
Dagebühl
Flensburg
Sörup
Schleswig
Kiel
Eutin
Neumünster
Syltholm
Klaipeda
Pagegiai
Tilsit
Insterburg
Gumbinnen
Eydtkuhnen
Königsberg
Braunsberg
Neukirch-Hohe
Bartenstein
Heilsberg
Rastenburg
Rothfliess
Allenstein
Lyck
Ortelsburg
Elbing
Tiegenhof
Marienburg
Tczew
Leba
Putzig
Kartuzy
Kościerzyna
Starogard
Stolp
Köslin
Plathe
Neustettin
Schlochau
Chojnice
Swiecie
Grudziadz
Toruń
Bydgoszcz
Schneidemühl
Wloclawek
Poznań
Zbaszyń
Leszno
Krosniewice
Lowicz
Warszawa
Siedlce
Bialystok
Lódz
Piotrków
Ostrów
Radom
Lublin
Chełm
Kielce
Ostrowiec
Sandomierz
Majdan
Czestochowa
Katowice
Myslowice
Hindenburg
Gleiwitz
Kosel
Ratibor
Kraków
Tarnów
Debica
Rzeszów
Oppeln
Schurgast
Breslau
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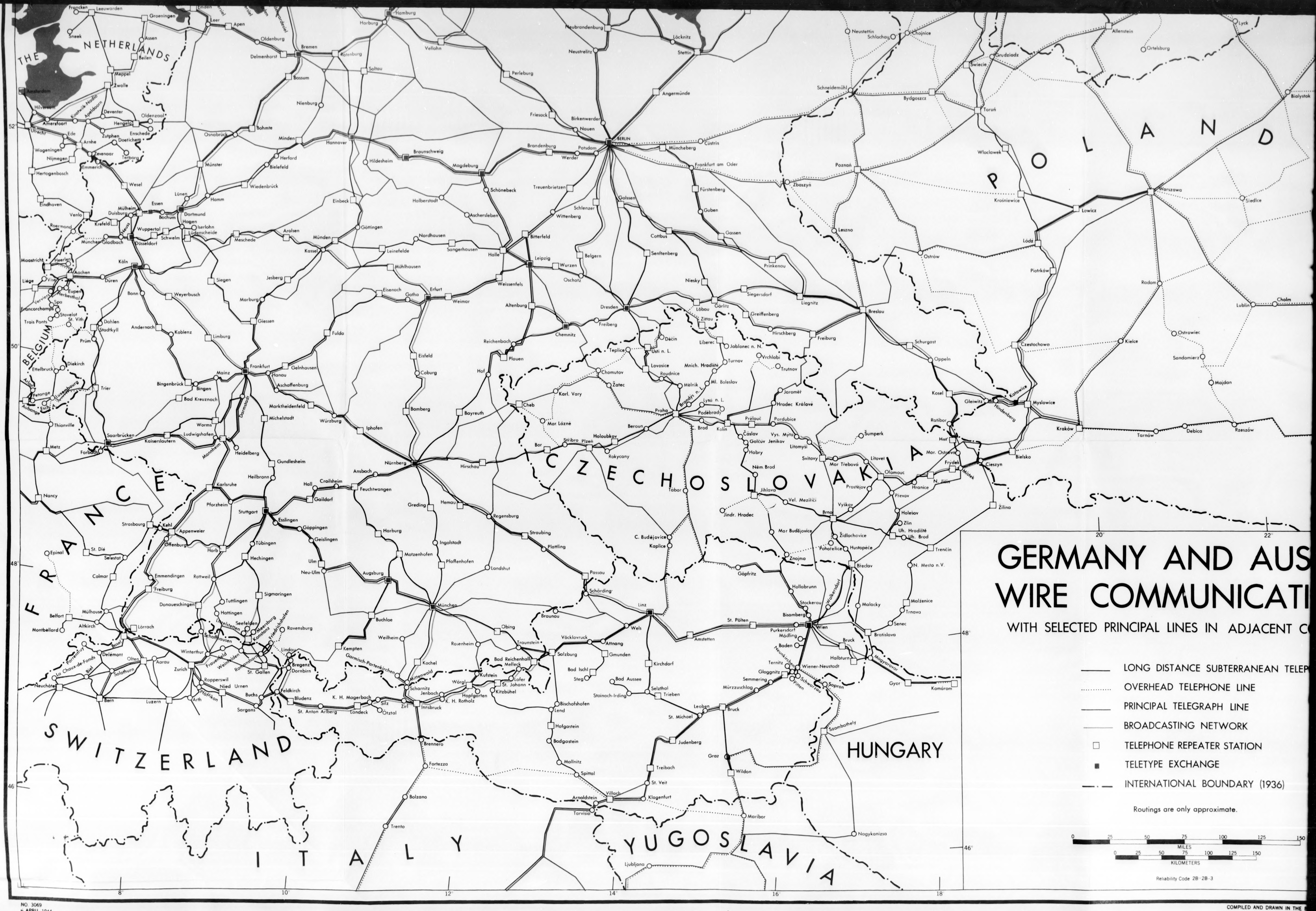
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□	TELEPHONE REPEATER STATION
■	TELETYPE EXCHANGE
─·─	INTERNATIONAL BOUNDARY (1936)

Routings are only approximate.

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Reliability Code 2B-2B-3

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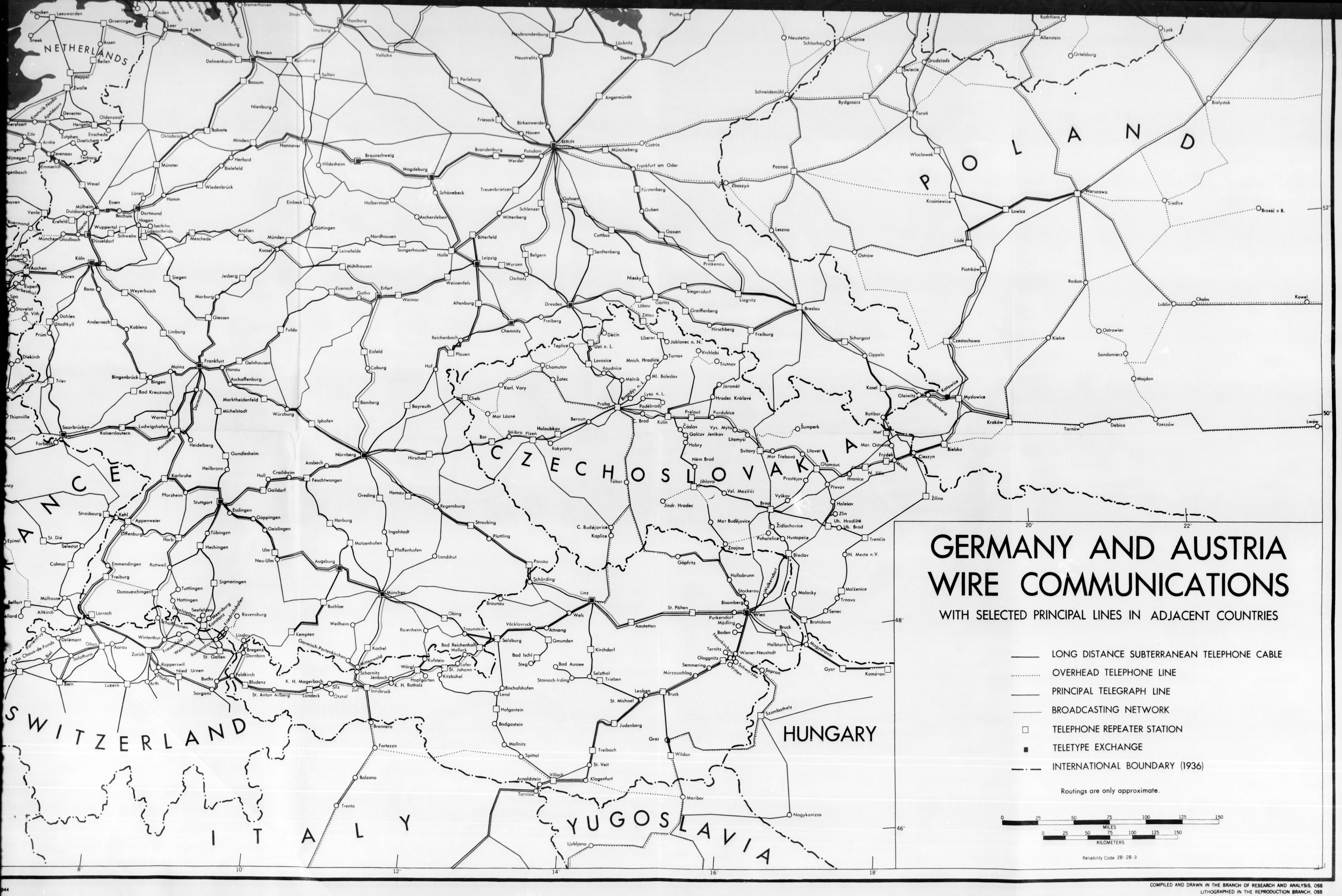
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GERMANY AND AUSTRIA WIRE COMMUNICATIONS

WITH SELECTED PRINCIPAL LINES IN ADJACENT COUNTRIES

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■ TELETYPE EXCHANGE
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Routings are only approximate.

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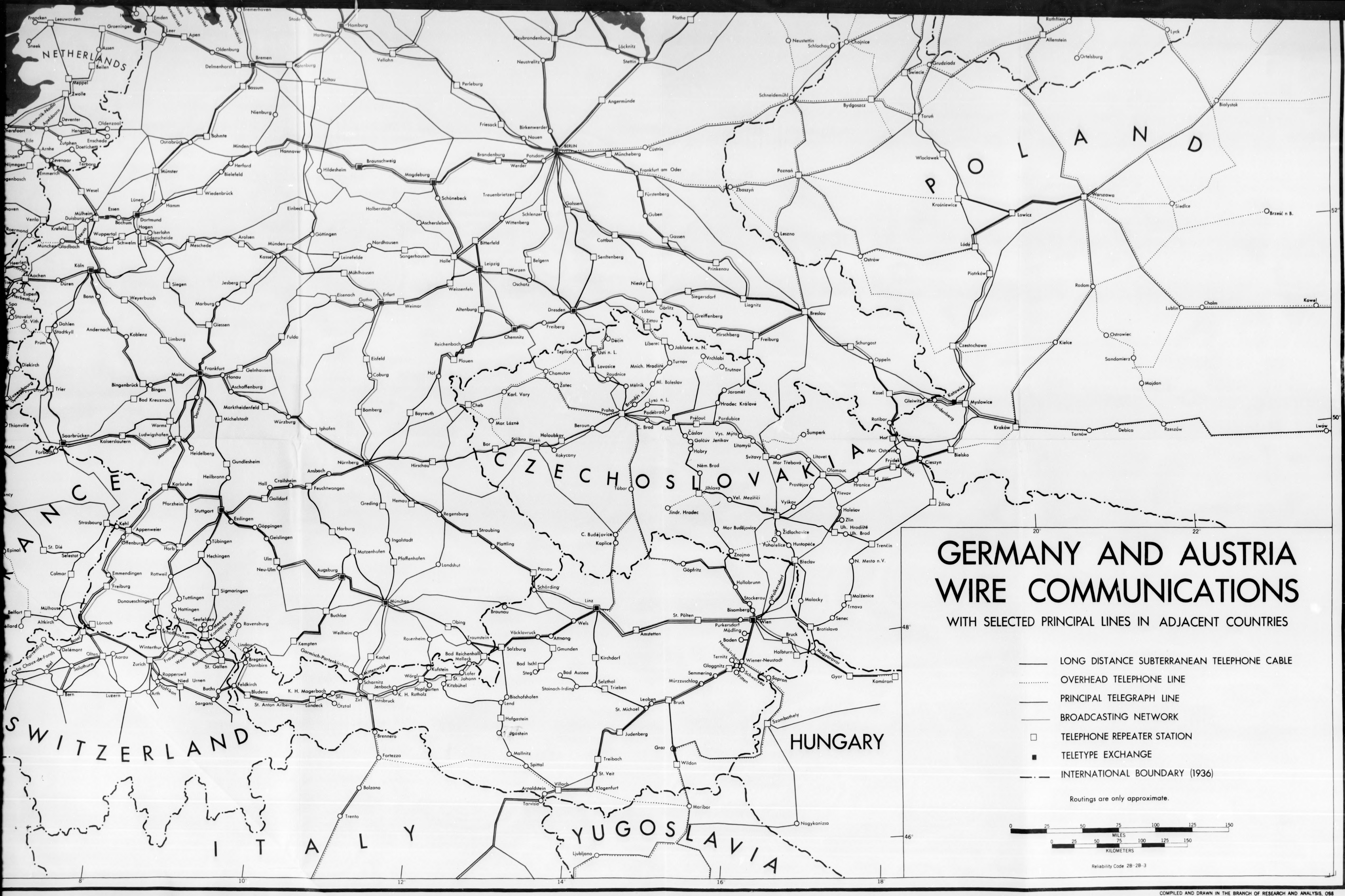
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GERMANY AND AUSTRIA WIRE COMMUNICATIONS

WITH SELECTED PRINCIPAL LINES IN ADJACENT COUNTRIES

━━	LONG DISTANCE SUBTERRANEAN TELEPHONE CABLE
┈┈	OVERHEAD TELEPHONE LINE
──	PRINCIPAL TELEGRAPH LINE
──	BROADCASTING NETWORK
□	TELEPHONE REPEATER STATION
■	TELETYPE EXCHANGE
—·—	INTERNATIONAL BOUNDARY (1936)

Routings are only approximate.

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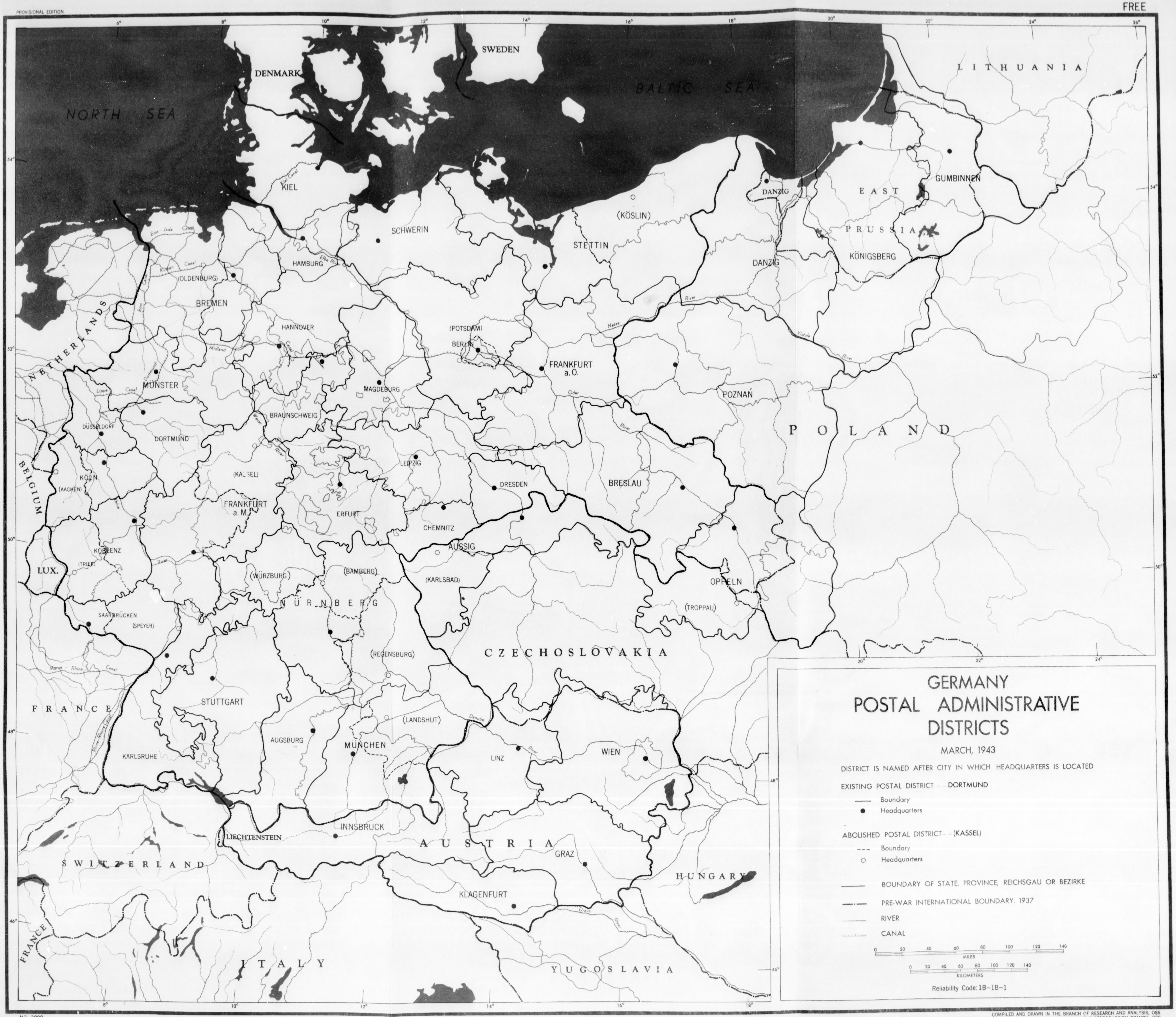

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HUNGARY
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ITALY
YUGOSLAVIA
Ems-Jade Canal
Küsten Canal
Mittelland Canal
Dortmund-Ems Canal
Lippe Canal
Elbe River
Weser River
Oder River
Netze River
Vistula River
Rhine River
Marne-Rhine Canal
Rhine-Rhone Canal
Danube River
Drave River
Kiel Canal

GERMANY
POSTAL ADMINISTRATIVE DISTRICTS

MARCH, 1943

DISTRICT IS NAMED AFTER CITY IN WHICH HEADQUARTERS IS LOCATED

EXISTING POSTAL DISTRICT - - DORTMUND

—	Boundary
●	Headquarters

ABOLISHED POSTAL DISTRICT - - (KASSEL)

- - -	Boundary
○	Headquarters

—	BOUNDARY OF STATE, PROVINCE, REICHSGAU OR BEZIRKE
—·—	PRE-WAR INTERNATIONAL BOUNDARY: 1937
—	RIVER
┄	CANAL

MILES 0 20 40 60 80 100 120 140

KILOMETERS 0 20 40 60 80 100 120 140

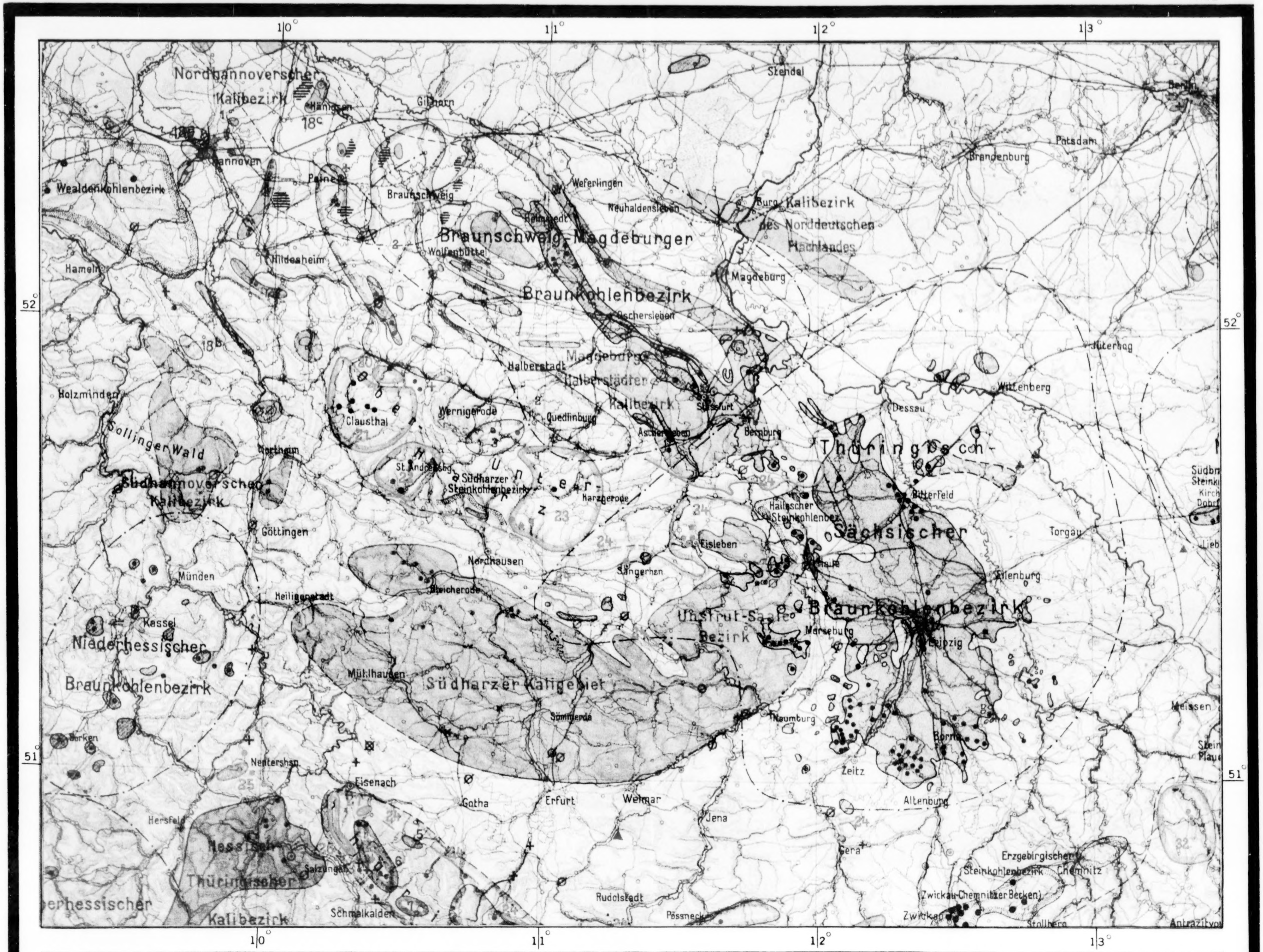
Reliability Code: 1B–1B–1

NO. 3099
10 MAY 1944

FREE

COMPILED AND DRAWN IN THE BRANCH OF RESEARCH AND ANALYSIS, OSS
LITHOGRAPHED IN THE REPRODUCTION BRANCH, OSS

FREE


10°
11°
12°
13°
52°
51°
Nordhannoverscher Kalibezirk
Hänigsen
18c
Gifhorn
Stendal
Berlin
Potsdam
Brandenburg
Hannover
Wealdenkohlenbezirk
Peine
Braunschweig
Weferlingen
Helmstedt
Neuhaldensleben
Burg
Kalibezirk des Norddeutschen Flachlandes
Braunschweig-Magdeburger Braunkohlenbezirk
Wolfenbüttel
Hildesheim
Hameln
Magdeburg
Oschersleben
18b
Jüterbog
Magdeburg-Halberstädter Kalibezirk
Halberstadt
Wittenberg
Holzminden
Clausthal
Oberharz
Wernigerode
Quedlinburg
Stassfurt
Aschersleben
Bernburg
Dessau
Thüringisch-Sächsischer Braunkohlenbezirk
Sollinger Wald
Northeim
Südhannoverscher Kalibezirk
St. Andreasberg
Südharzer Steinkohlenbezirk
Unterharz
Harzgerode
Hallescher Steinkohlenbez.
Bitterfeld
Göttingen
Eisleben
Torgau
Nordhausen
Halle
Münden
Sangerhsn
Eilenburg
Heiligenstadt
Bleicherode
Kassel
Unstrut-Saale Bezirk
Merseburg
Leipzig
Niederhessischer Braunkohlenbezirk
Mühlhausen
Südharzer Kaligebiet
Sömmerda
Naumburg
Meissen
Borken
Nentershsn
Borna
Eisenach
Zeitz
Gotha
Erfurt
Weimar
Altenburg
Hersfeld
Jena
Hessisch-Thüringischer Kalibezirk
Salzungen
Gera
Erzgebirgischer Steinkohlenbezirk
Chemnitz
Oberhessischer
Schmalkalden
Rudolstadt
Pössneck
(Zwickau-Chemnitzer Becken)
Zwickau
Stollberg
Antrazitvor
Südbr
Steink
Kirch
Dobrl
Lieb
Stein
Plaue
23
24
25
32

Known Probable

- Bituminous Coal
- Brown Coal
- Potash And Rock Salt
- Iron And Manganese Ore
- Copper-bearing Shale Outcrop (Kupferschiefer)
- Metallic Ores; Barite, Fluorite
- Petroleum

☒ Rock Salt Mines And Bore Holes
⊙ Joint production of Potash And Rock Salt
+ Salt Springs
∅ Salt Flats
+ Iron-bearing Springs
× Sulphur Springs
▲ Mud Baths
○ Simple Hot And Cold Springs

COMMERCIAL ORE DEPOSITS OF CENTRAL GERMANY

KILOMETERS 0 10 20 30 40 50 60 70

NO. A 3047
27 JAN.1944

LITHOGRAPHED IN THE REPRODUCTION BRANCH, OSS

PROVISIONAL EDITION

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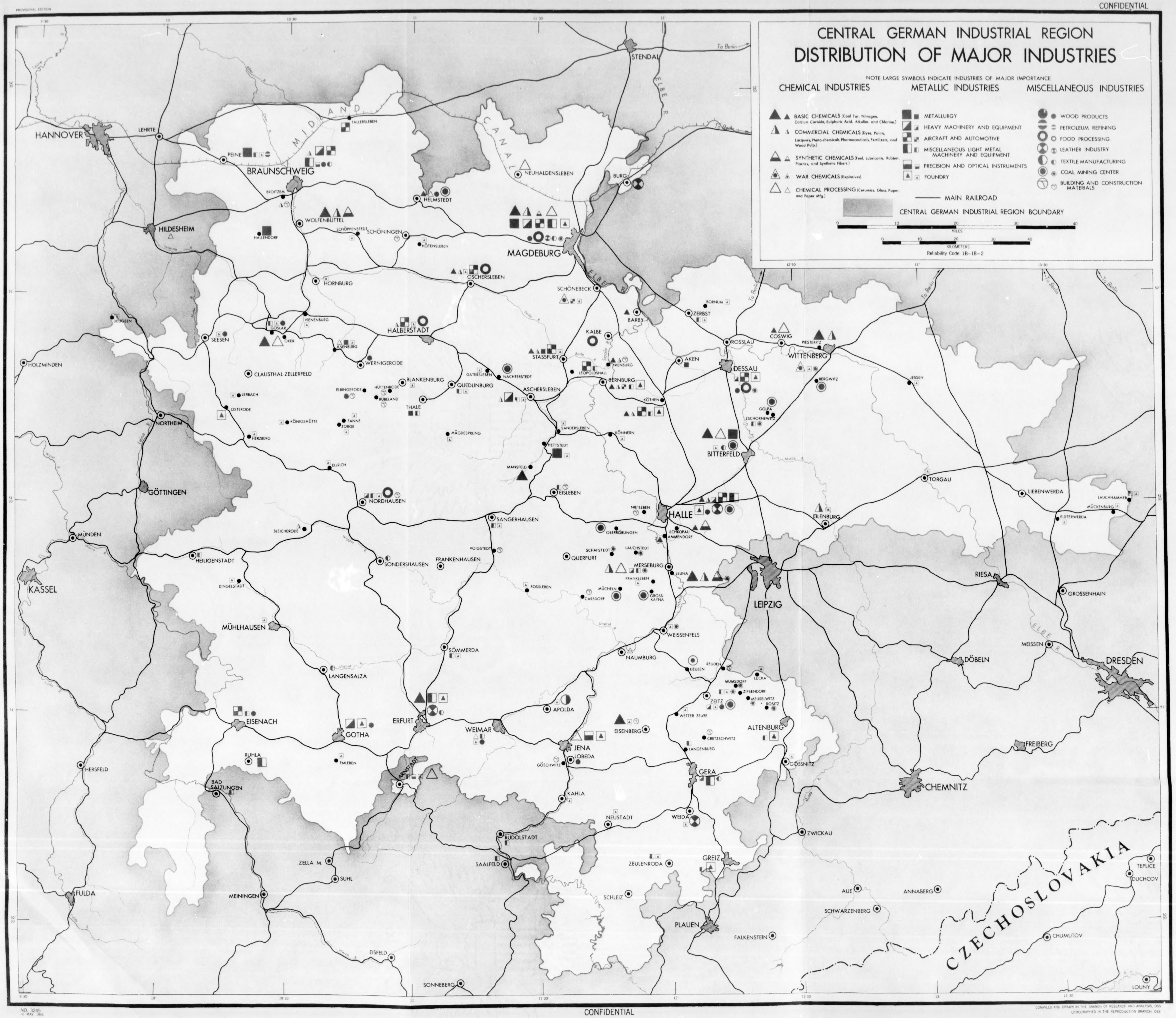
CENTRAL GERMAN INDUSTRIAL REGION
DISTRIBUTION OF MAJOR INDUSTRIES


NOTE: LARGE SYMBOLS INDICATE INDUSTRIES OF MAJOR IMPORTANCE
CHEMICAL INDUSTRIES
▲ BASIC CHEMICALS (Coal Tar, Nitrogen, Calcium Carbide, Sulphuric Acid, Alkalies and Chlorine.)
△ COMMERCIAL CHEMICALS (Dyes, Paints, Lacquers, Photo-chemicals, Pharmaceuticals, Fertilizers, and Wood Pulp.)
△ SYNTHETIC CHEMICALS (Fuel, Lubricants, Rubber, Plastics, and Synthetic Fibers.)
△ WAR CHEMICALS (Explosives)
△ CHEMICAL PROCESSING (Ceramics, Glass, Paper, and Paper Mfg.)
METALLIC INDUSTRIES
■ METALLURGY
◪ HEAVY MACHINERY AND EQUIPMENT
▚ AIRCRAFT AND AUTOMOTIVE
◧ MISCELLANEOUS LIGHT METAL MACHINERY AND EQUIPMENT
⬓ PRECISION AND OPTICAL INSTRUMENTS
▣ FOUNDRY
MISCELLANEOUS INDUSTRIES
● WOOD PRODUCTS
⊖ PETROLEUM REFINING
○ FOOD PROCESSING
⊗ LEATHER INDUSTRY
◐ TEXTILE MANUFACTURING
◉ COAL MINING CENTER
○ BUILDING AND CONSTRUCTION MATERIALS
MAIN RAILROAD
CENTRAL GERMAN INDUSTRIAL REGION BOUNDARY
0 10 20 30 40
MILES
0 10 20 30 40
KILOMETERS
Reliability Code: 1B-1B-2
HANNOVER
LEHRTE
PEINE
FALLERSLEBEN
BRAUNSCHWEIG
MIDLAND CANAL
STENDAL
To Berlin
ELBE R.
BURG
NEUHALDENSLEBEN
HELMSTEDT
BROITZEM
WOLFENBÜTTEL
HILDESHEIM
HALLENDORF
SCHÖPPENSTEDT
SCHÖNINGEN
HÖTENSLEBEN
MAGDEBURG
OSCHERSLEBEN
HORNBURG
SCHÖNEBECK
BARBY
ZERBST
BORNUM
DEHNSEN
SEESEN
GOSLAR
OKER
VIENENBURG
ILSENBURG
HALBERSTADT
KALBE
STASSFURT
ROSSLAU
COSWIG
PIESTERITZ
WITTENBERG
HOLZMINDEN
CLAUSTHAL-ZELLERFELD
WERNIGERODE
GATERSLEBEN
NACHTERSTEDT
LEOPOLDSHALL
NIENBURG
AKEN
DESSAU
BERGWITZ
JESSEN
LERBACH
OSTERODE
ELBINGERODE
HÜTTENRODE
RÜBELAND
BLANKENBURG
QUEDLINBURG
THALE
ASCHERSLEBEN
BERNBURG
KÖTHEN
GOLPA
ZSCHORNEWITZ
NORTHEIM
KÖNIGSHÜTTE
TANNE
ZORGE
HERZBERG
MÄGDESPRUNG
SANDERSLEBEN
KÖNNERN
HETTSTEDT
BITTERFELD
ELLRICH
MANSFELD
TORGAU
LIEBENWERDA
LAUCHHAMMER
MÜCKENBURG
ELSTERWERDA
GÖTTINGEN
NORDHAUSEN
EISLEBEN
NIETLEBEN
HALLE
EILENBURG
BLEICHERODE
SANGERHAUSEN
OBERRÖBLINGEN
SCHKOPAU
AMMENDORF
MÜNDEN
HEILIGENSTADT
VOIGTSTEDT
SCHAFSTEDT
LAUCHSTEDT
SONDERSHAUSEN
FRANKENHAUSEN
QUERFURT
MERSEBURG
LEUNA
FRANKLEBEN
LEIPZIG
RIESA
GROSSENHAIN
KASSEL
DINGELSTADT
ROSSLEBEN
MÜCHELN
CARSDORF
GROSS-KAYNA
MÜHLHAUSEN
WEISSENFELS
SÖMMERDA
NAUMBURG
DEUBEN
REUDEN
MEISSEN
DÖBELN
DRESDEN
LANGENSALZA
LUCKA
MUMSDORF
ZIPSENDORF
MEUSELWITZ
ROSITZ
ZEITZ
WETTER ZEUSE
APOLDA
EISENACH
GOTHA
ERFURT
WEIMAR
EISENBERG
ALTENBURG
CRETZSCHWITZ
LANGENBURG
JENA
LOBEDA
GÖSCHWITZ
RUHLA
EMLEBEN
ARNSTADT
GERA
GÖSSNITZ
FREIBERG
CHEMNITZ
HERSFELD
BAD SALZUNGEN
KAHLA
NEUSTADT
WEIDA
ZWICKAU
RUDOLSTADT
ZELLA M.
SUHL
SAALFELD
ZEULENRODA
GREIZ
FULDA
MEININGEN
SCHLEIZ
AUE
ANNABERG
SCHWARZENBERG
PLAUEN
FALKENSTEIN
TEPLICE
DUCHCOV
CZECHOSLOVAKIA
CHUMUTOV
EISFELD
SONNEBERG
LOUNY
9°30'
10°
10°30'
11°
11°30'
12°
12°30'
13°
13°30'
52°30'
52°
51°30'
51°
50°30'

NO. 3245
16 MAY 1944

CONFIDENTIAL

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CENTRAL GERMAN INDUSTRIAL REGION

NATIONAL RAILWAYS: FACILITIES AND ADMINISTRATION

FACILITIES

- ◍ Classification Yard
- ⊛ Major Repair Shop
- ▲ Sup't. of Operations and Maintenance of Way and Structures
- ■ Master Mechanic (Operation and Maintenance of Equipment)
- ● Traffic Superintendent
- ▚ Superintendent of New Construction
- ◎ Division Management Headquarters
- ○ Principal Railway Station
- ∘ Other Railway Station

ADMINISTRATIVE DISTRICTS 1942

■ Augsburg	■ Frankfurt am Main
■ Stuttgart	■ Wuppertal
■ Nürnberg	■ Münster
■ Regensburg	■ Hamburg
■ Breslau	■ Hannover
■ Frankfurt a/d Oder	■ Kassel
■ Stettin	■ Erfurt
■ Schwerin	■ Dresden
■ Karlsruhe	■ Halle
■ Mainz	■ Berlin

Principal Rail Line

Secondary Rail Line

Electrified Rail Line

Symbolized lines above indicate classification, color indicates administration. All private lines in Germany as well as all lines outside of Germany shown in black on map.

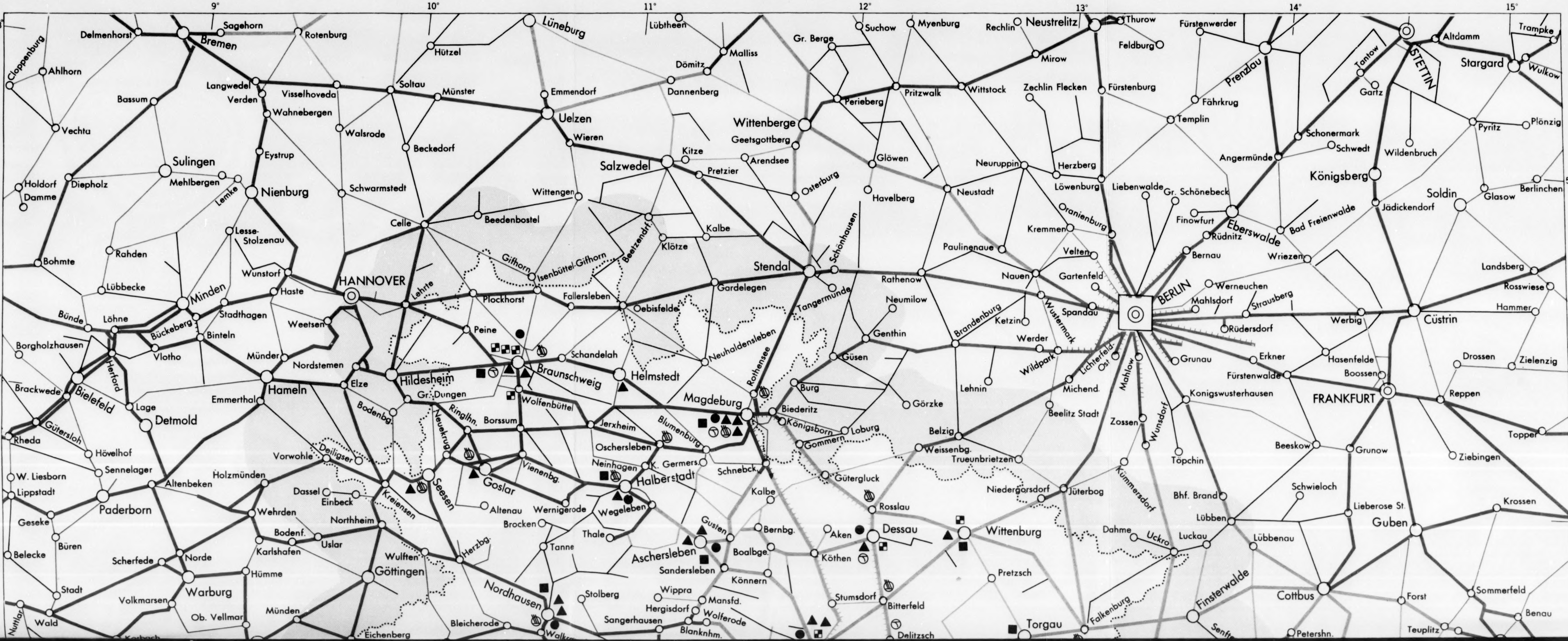
International Boundary

Boundary of Central German Industrial Region

0 10 20 30 40 50 60 70 80 90 100
MILES

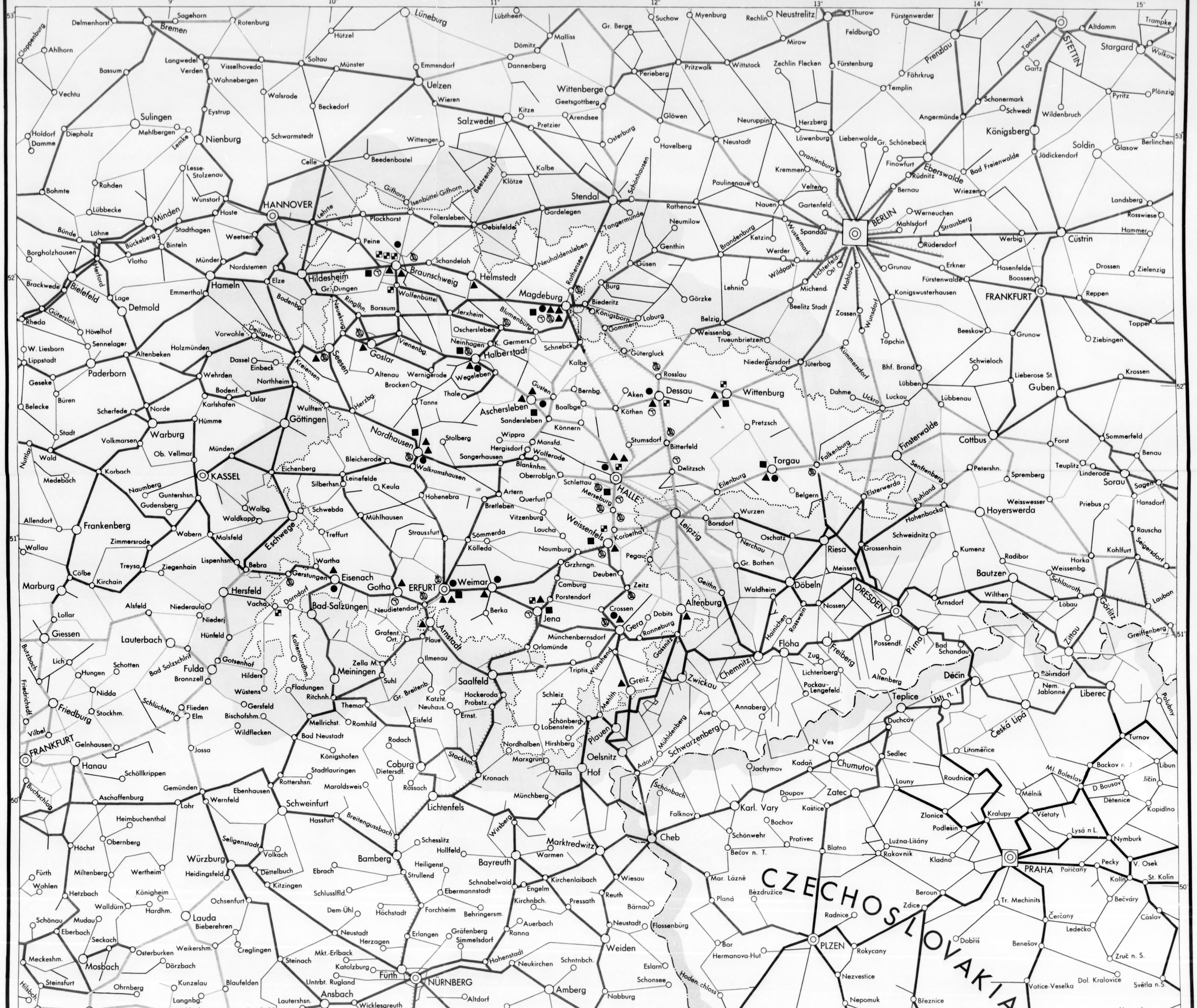
0 10 20 30 40 50 60 70 80 90 100
KILOMETERS

Reliability Code: 2B–2B–2


9°
10°
11°
12°
13°
14°
15°
53°
52°
Delmenhorst
Sagehorn
Bremen
Rotenburg
Lüneburg
Hützel
Lübtheen
Malliss
Dömitz
Gr. Berge
Suchow
Myenburg
Rechlin
Neustrelitz
Thurow
Feldburg
Fürstenwerder
Mirow
Prenzlau
Tantow
Gartz
Stettin
Altdamm
Trampke
Stargard
Wulkow
Cloppenburg
Ahlhorn
Bassum
Langwedel
Verden
Visselhoveda
Wahnebergen
Soltau
Münster
Emmendorf
Dannenberg
Perleberg
Pritzwalk
Wittstock
Zechlin Flecken
Fürstenberg
Fährkrug
Templin
Pyritz
Plönzig
Vechta
Walsrode
Beckedorf
Uelzen
Wieren
Wittenberge
Geetsgottberg
Glöwen
Neuruppin
Herzberg
Schonermark
Schwedt
Angermünde
Wildenbruch
Königsberg
Sulingen
Mehlbergen
Eystrup
Salzwedel
Kitze
Pretzier
Arendsee
Osterburg
Havelberg
Neustadt
Löwenburg
Liebenwalde
Gr. Schönebeck
Holdorf
Damme
Diepholz
Nienburg
Lemke
Schwarmstedt
Wittengen
Oranienburg
Finowfurt
Eberswalde
Bad Freienwalde
Jädickendorf
Soldin
Glasow
Berlinchen
Lesse-Stolzenau
Celle
Beedenbostel
Kalbe
Schönhausen
Paulinenaue
Kremmen
Velten
Rüdnitz
Bernau
Wriezen
Landsberg
Rosswiese
Bohmte
Rahden
Wunstorf
Gifhorn
Isenbüttel-Gifhorn
Beetzendorf
Klötze
Stendal
Rathenow
Nauen
Gartenfeld
BERLIN
Werneuchen
Mahlsdorf
Strausberg
Hammer
Lübbecke
Minden
Haste
HANNOVER
Lehrte
Plockhorst
Fallersleben
Oebisfelde
Gardelegen
Tangermünde
Neumilow
Ketzin
Spandau
Wustermark
Rüdersdorf
Werbig
Cüstrin
Bünde
Löhne
Bückeberg
Stadthagen
Weetsen
Peine
Schandelah
Neuhaldensleben
Brandenburg
Werder
Borgholzhausen
Herford
Vlotho
Binteln
Münder
Nordstemen
Elze
Hildesheim
Braunschweig
Helmstedt
Genthin
Wildpark
Lichterfeld Ost
Mahlow
Grunau
Erkner
Fürstenwalde
Hasenfelde
Boossen
Drossen
Zielenzig
Brackwede
Bielefeld
Lage
Hameln
Gr. Dungen
Magdeburg
Rothensee
Güsen
Burg
Görzke
Lehnin
Michend.
Beelitz Stadt
FRANKFURT
Reppen
Emmerthal
Detmold
Gütersloh
Bodenbg.
Ringlhn.
Wolfenbüttel
Borssum
Jerxheim
Blumenberg
Biederitz
Königsborn
Loburg
Zossen
Wunsdorf
Konigswusterhausen
Rheda
Hövelhof
Sennelager
Holzmünden
Vorwohle
Deiligsen
Neuekrug
Oschersleben
Gommern
Belzig
Weissenbg.
Trueunbrietzen
Töpchin
Beeskow
Grunow
Ziebingen
Topper
W. Liesborn
Lippstadt
Altenbeken
Dassel
Einbeck
Seesen
Goslar
Vienenbg.
Neinhagen
K. Germers.
Halberstadt
Schnebck.
Gütergluck
Niedergörsdorf
Jüterbog
Kümmersdorf
Bhf. Brand
Schwieloch
Krossen
Geseke
Paderborn
Wehrden
Kreiensen
Altenau
Wernigerode
Wegeleben
Kalbe
Rosslau
Lübben
Lieberose St.
Guben
Northeim
Brocken
Thale
Gusten
Bernbg.
Aken
Dessau
Wittenburg
Dahme
Uckro
Luckau
Lübbenau
Belecke
Büren
Bodenf.
Uslar
Scherfede
Norde
Karlshafen
Wulften
Herzbg.
Tanne
Aschersleben
Boalbge.
Köthen
Sandersleben
Könnern
Pretzsch
Hümme
Göttingen
Stadt
Warburg
Volkmarsen
Nordhausen
Stolberg
Wippra
Mansfd.
Hergisdorf
Stumsdorf
Bitterfeld
Falkenburg
Finsterwalde
Cottbus
Forst
Sommerfeld
Benau
Nuttlar
Wald
Ob. Vellmar
Münden
Bleicherode
Sangerhausen
Wolferode
Blankhnm.
Torgau
Delitzsch
Eichenberg
Petershn.
Teuplitz

KILOMETERS

Reliability Code: 2B–2B–2



9°
10°
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15°
53°
52°
51°
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Bremen
Lüneburg
Neustrelitz
STETTIN
Stargard
Uelzen
Wittenberge
Salzwedel
Prenzlau
Eberswalde
Königsberg
Soldin
Nienburg
Sulingen
Celle
Stendal
HANNOVER
Minden
BERLIN
Cüstrin
Bielefeld
Hameln
Hildesheim
Braunschweig
Helmstedt
Magdeburg
Brandenburg
FRANKFURT
Detmold
Paderborn
Goslar
Halberstadt
Aschersleben
Dessau
Wittenburg
Göttingen
Nordhausen
Guben
Warburg
KASSEL
HALLE
Torgau
Finsterwalde
Cottbus
Sorau
Frankenberg
Eschwege
Merseburg
Weissenfels
Leipzig
Hoyerswerda
Riesa
Marburg
Hersfeld
Eisenach
Gotha
ERFURT
Weimar
Jena
Altenburg
Döbeln
DRESDEN
Bautzen
Görlitz
Giessen
Bad-Salzungen
Arnstadt
Gera
Chemnitz
Freiberg
Pirna
Zittau
Fulda
Meiningen
Saalfeld
Greiz
Zwickau
Flöha
Děčín
Liberec
Friedburg
FRANKFURT
Hanau
Coburg
Plauen
Oelsnitz
Hof
Teplice
Chumutov
Schweinfurt
Lichtenfels
Cheb
Karl. Vary
Zatec
Würzburg
Bamberg
Bayreuth
Marktredwitz
PRAHA
Lauda
Weiden
Mosbach
Fürth
NÜRNBERG
PLZEN
Heilbronn
Ansbach
Amberg
Crailsheim
Schwandorf
Domažlice
Tábor
CZECHOSLOVAKIA

NO. 3264
15 MAY 1944

CONFIDENTIAL

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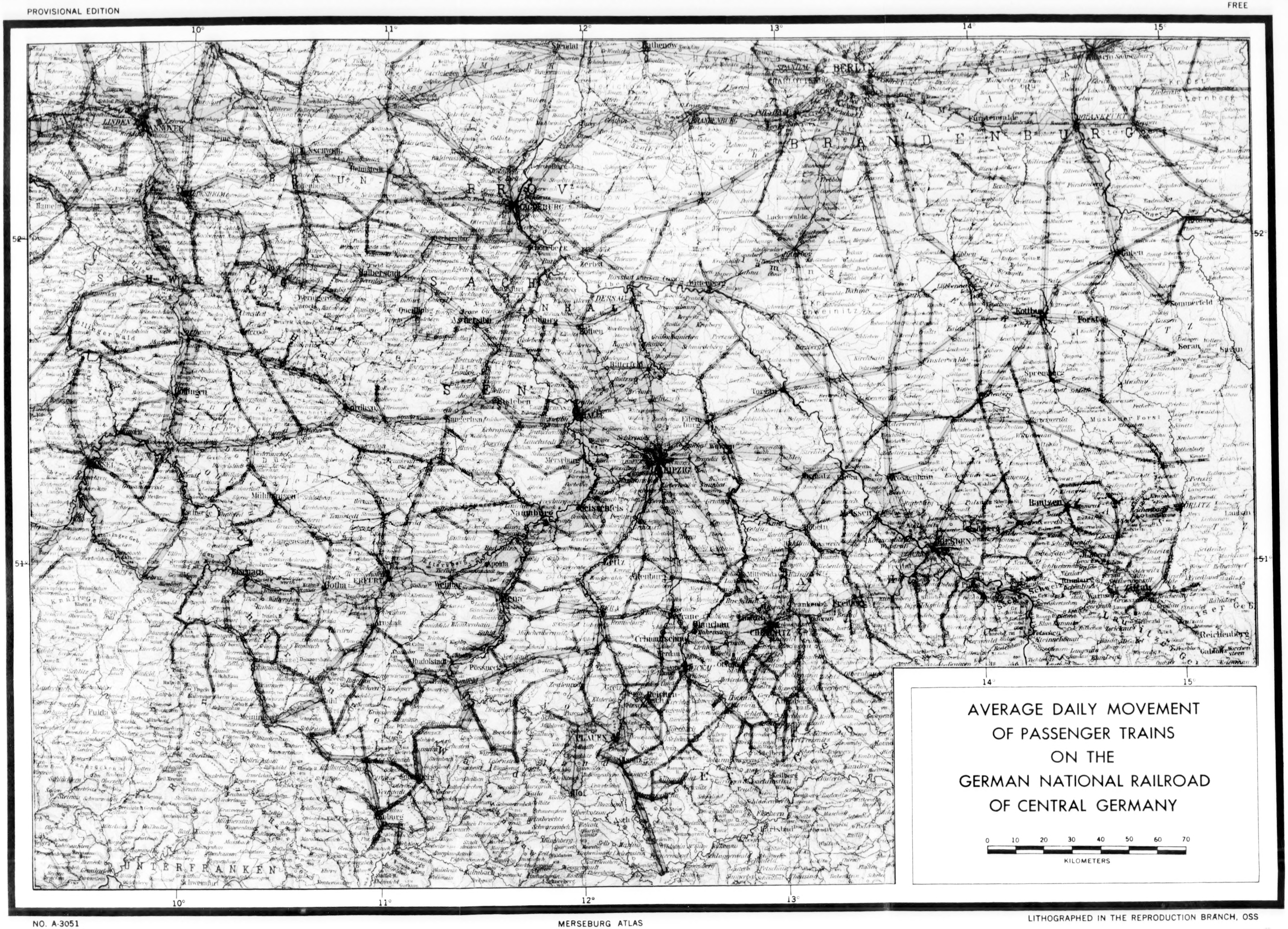
LITHOGRAPHED IN THE REPRODUCTION BRANCH, OSS


10°
11°
12°
13°
14°
15°
52°
51°
BERLIN
HANNOVER
BRAUNSCHWEIG
MAGDEBURG
DESSAU
HALLE
LEIPZIG
DRESDEN
CHEMNITZ
PLAUEN
ERFURT
Weimar
Gotha
Eisenach
Göttingen
Kassel
Cottbus
Görlitz
Bautzen
B R A N D E N B U R G
S A C H S E N
UNTERFRANKEN
0
10
20
30
40
50
60
70
KILOMETERS

AVERAGE DAILY MOVEMENT OF PASSENGER TRAINS ON THE GERMAN NATIONAL RAILROAD OF CENTRAL GERMANY

LITHOGRAPHED IN THE REPRODUCTION BRANCH, OSS

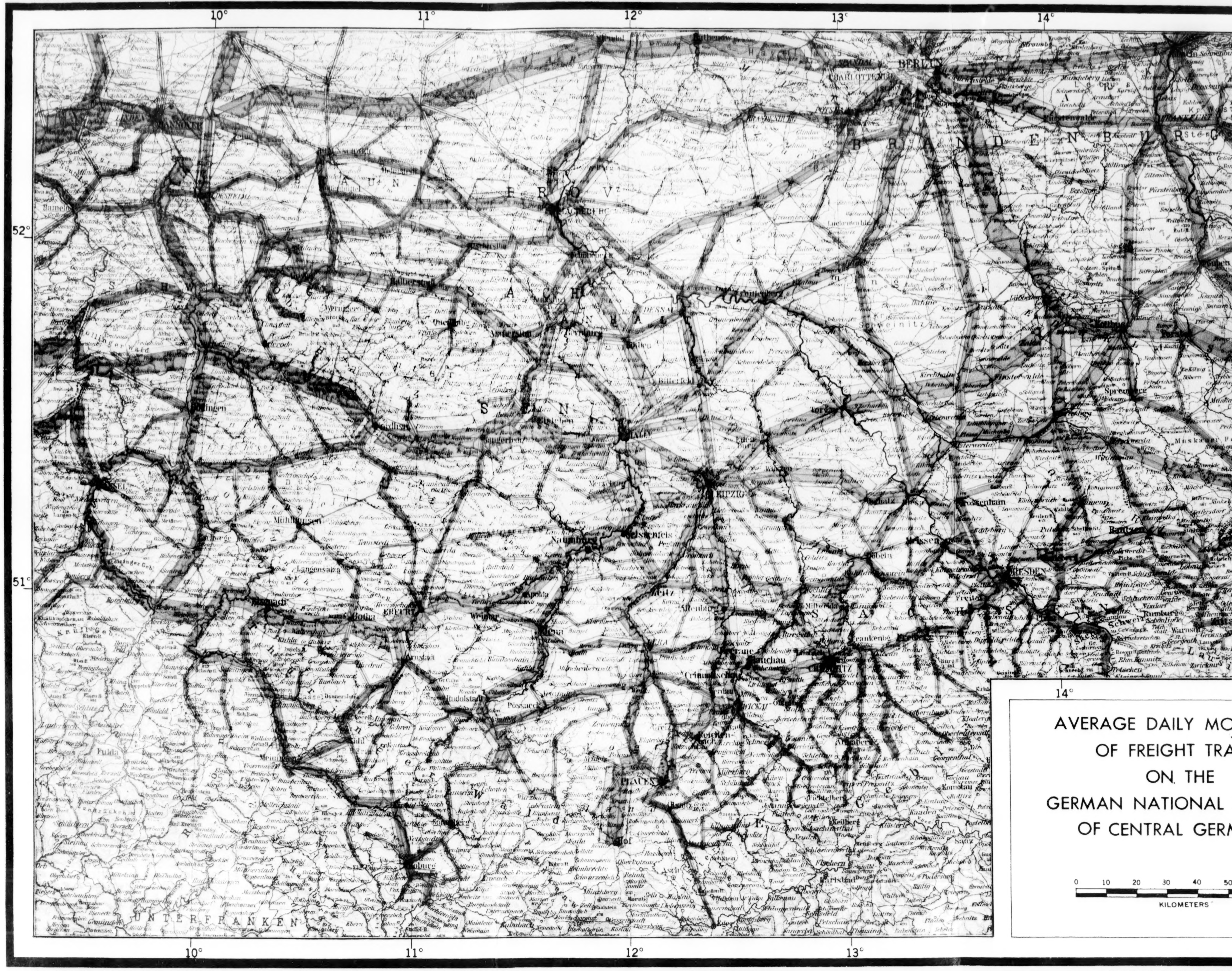
Gross Tonnage of Passenger Trains Moving in Both Directions As Of 4 June 1928

1 Unit - 2000 Metric Tons

Tons

PROVISIONAL EDITION

FREE



AVERAGE DAILY MOVEMENT OF FREIGHT TRAINS ON THE GERMAN NATIONAL RAILROAD OF CENTRAL GERMANY

10°
11°
12°
13°
14°
15°
52°
51°
0 10 20 30 40 50 60 70
KILOMETERS
BERLIN
BRANDENBURG
MAGDEBURG
DESSAU
HALLE
LEIPZIG
DRESDEN
ERFURT
CHEMNITZ
PLAUEN
ZWICKAU
GÖRLITZ
Reichenberg
Coburg
Fulda
UNTERFRANKEN

NO. A-3050
30 JAN. 1944

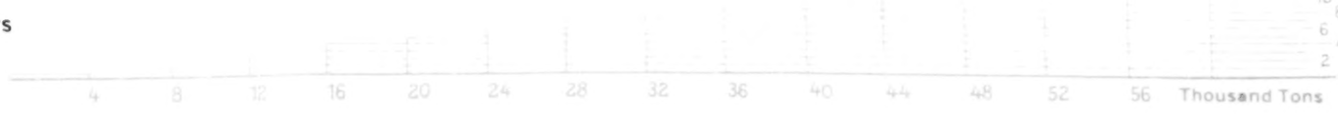
Gross Tonnage of Freight Moving in Both Directions as of 14 June 1928.
For Routes with Freight Traffic of Less Than 8,000 Gross Tons,
only Gross Tons are Given. Routes with Freight Traffic of Less Than 2,000 Gross Tons are Indicated by Lines.
Light Railways (Nebenbahnahnliche Kleinbahnen) Are Indicated by Dotted Lines.

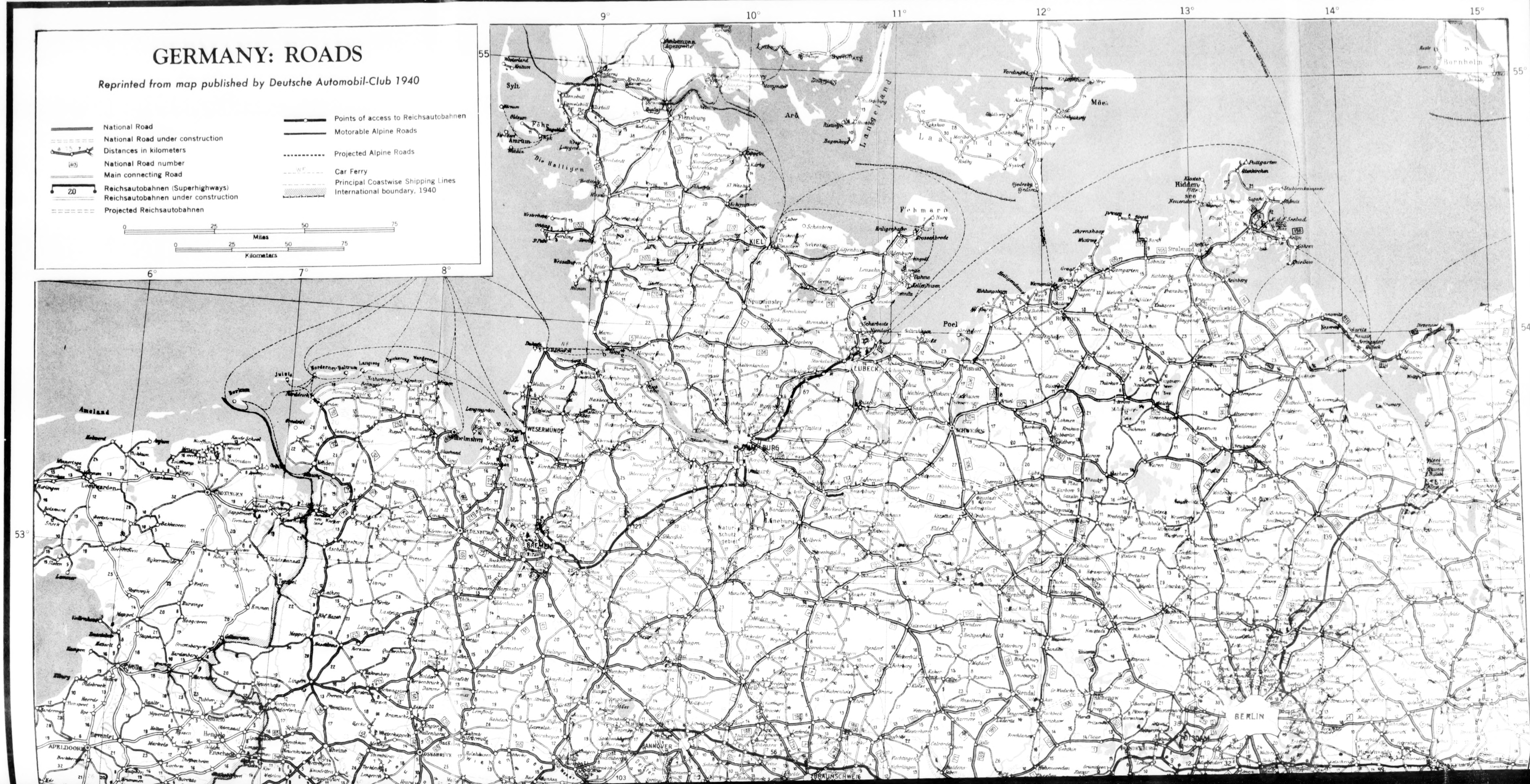
MERSEBURG ATLAS

LITHOGRAPHED IN THE REPRODUCTION BRANCH, OSS

Gross Tonnage of Freight Trains
- ▨ Tare Weight of Cars
- ▨ Net Load

Scale: 1 unit · 4,000 metric tons

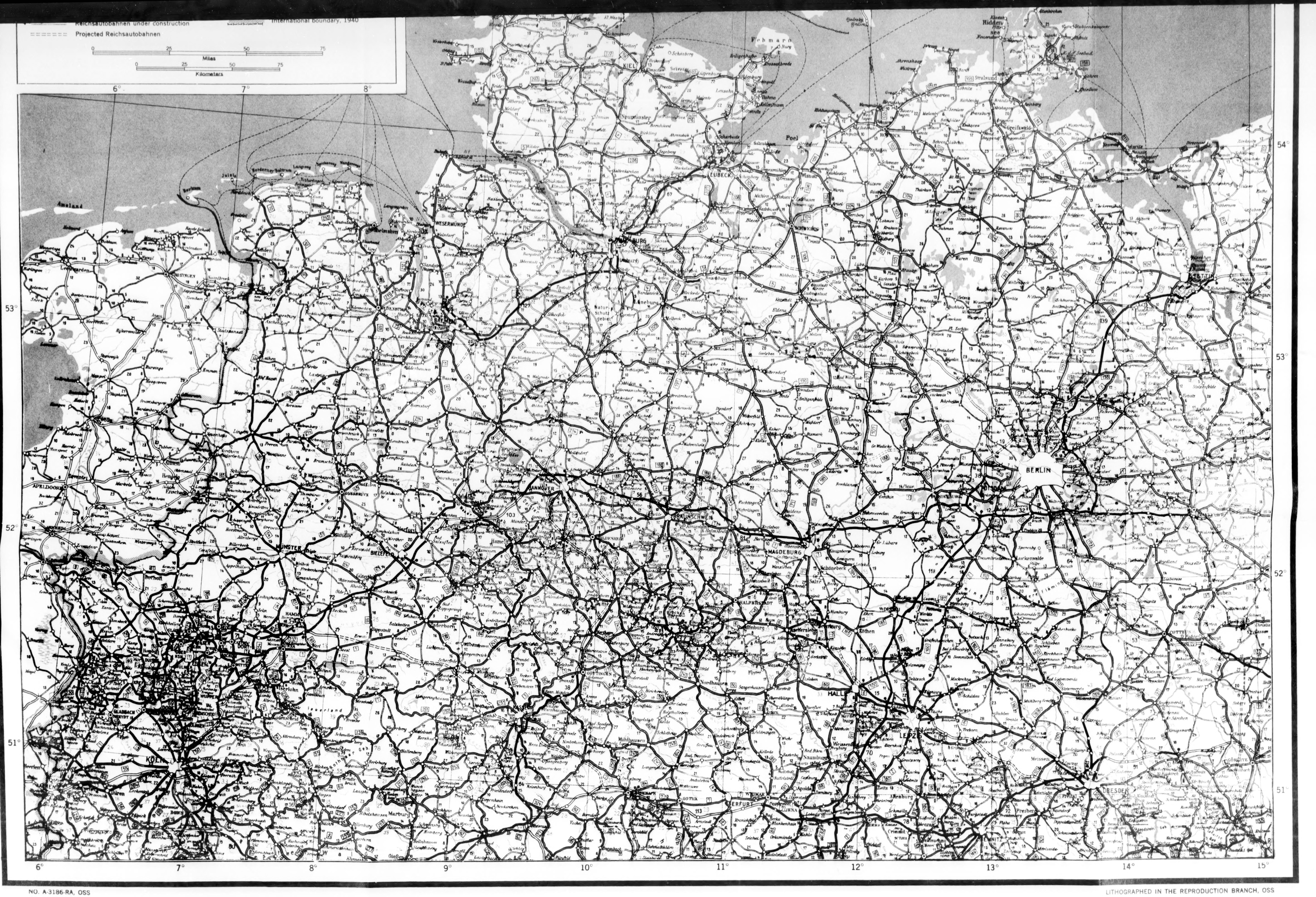




GERMANY: ROADS

Reprinted from map published by Deutsche Automobil-Club 1940

National Road
National Road under construction
Distances in kilometers
National Road number
Main connecting Road
Reichsautobahnen (Superhighways)
Reichsautobahnen under construction
Projected Reichsautobahnen
Points of access to Reichsautobahnen
Motorable Alpine Roads
Projected Alpine Roads
Car Ferry
Principal Coastwise Shipping Lines
International boundary, 1940
0 25 50 75
Miles
0 25 50 75
Kilometers
6° 7° 8° 9° 10° 11° 12° 13° 14° 15°
55° 54° 53°
DANEMARK
Sylt
Föhr
Amrum
Die Halligen
Flensburg
KIEL
Fehmarn
Neumünster
LÜBECK
HAMBURG
Lüneburg
WESERMÜNDE
Wilhelmshaven
BREMEN
Oldenburg
Emden
Groningen
Leeuwarden
Ameland
Borkum
Juist
Norderney
Baltrum
Langeoog
Spiekeroog
Wangerooge
Schwerin
ROSTOCK
Stralsund
Greifswald
Rügen
Hiddensee
Poel
Möen
Laaland
Langeland
STETTIN
BERLIN
HANNOVER
BRAUNSCHWEIG
OSNABRÜCK
Apeldoorn
Bornholm



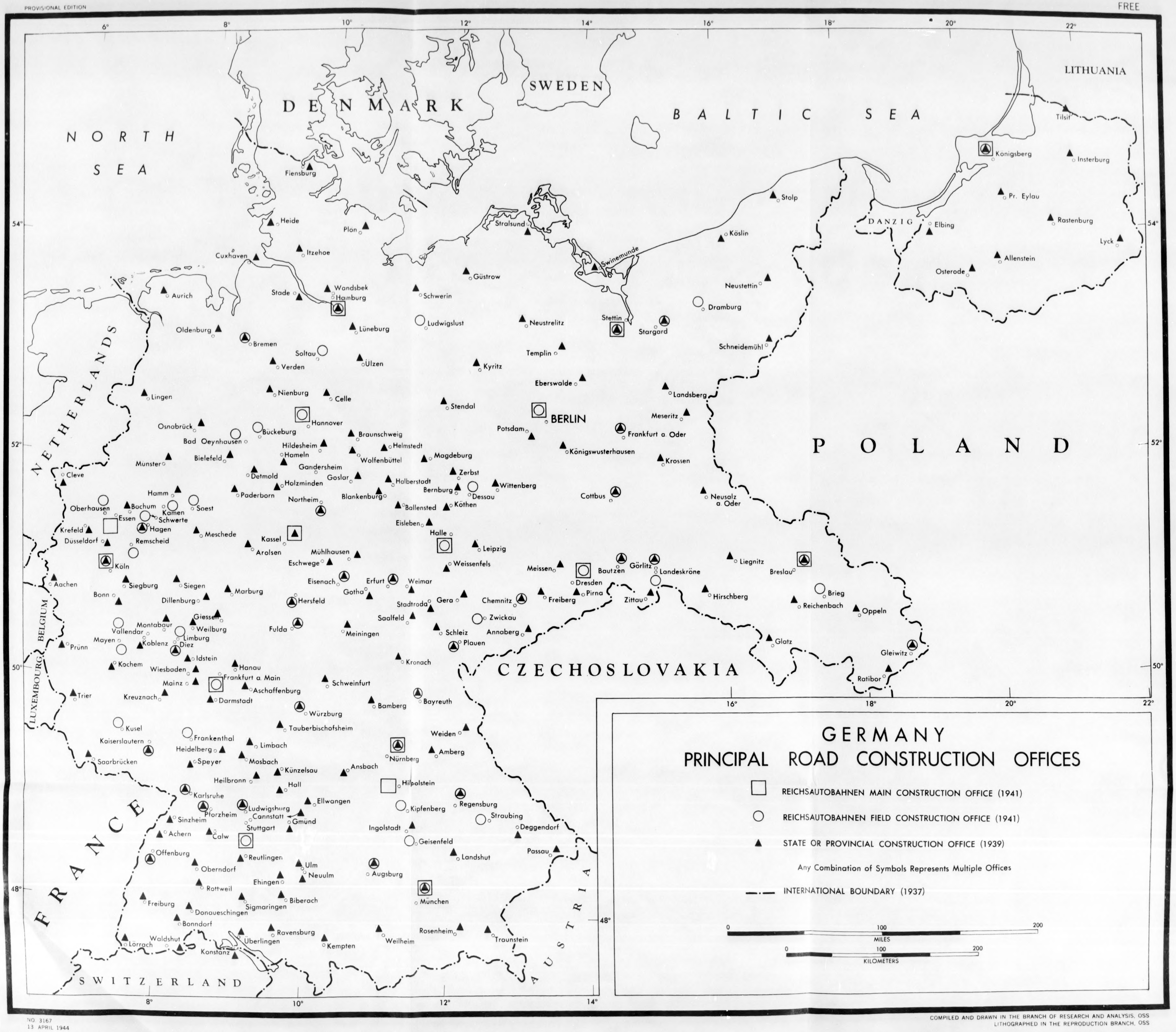
Reichsautobahnen under construction
Projected Reichsautobahnen
International boundary, 1940
0 25 50 75
Miles
0 25 50 75
Kilometers
6° 7° 8°
54° 53° 52° 51°
6° 7° 8° 9° 10° 11° 12° 13° 14° 15°
KIEL
LÜBECK
HAMBURG
WESERMÜNDE
BREMEN
STETTIN
BERLIN
POTSDAM
HANNOVER
BRAUNSCHWEIG
MAGDEBURG
OSNABRÜCK
MÜNSTER
BIELEFELD
HAMM
HILDESHEIM
GÖTTINGEN
HALLE
LEIPZIG
DRESDEN
KÖLN
ERFURT
WEIMAR
GOTHA
Stralsund
Greifswald
Rostock
Wismar
Schwerin
Lüneburg
Stendal
Dessau
Köthen
Nordhausen
Mühlhausen
Naumburg
Zeitz
Altenburg
Meissen
Freiberg
Guben
Cottbus
Marburg
Paderborn
Hameln
Herford
Emden
Leeuwarden
Apeldoorn
Groningen
Ameland
Borkum
Juist
Norderney
Baltrum
Langeoog
Fehmarn
Poel
Rügen
Sauerland

NO. A-3186-RA, OSS
20 JUNE 1944

LITHOGRAPHED IN THE REPRODUCTION BRANCH, OSS

PROVISIONAL EDITION

FREE


6°
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52°
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NORTH SEA
DENMARK
SWEDEN
BALTIC SEA
LITHUANIA
DANZIG
POLAND
NETHERLANDS
BELGIUM
LUXEMBOURG
FRANCE
SWITZERLAND
AUSTRIA
CZECHOSLOVAKIA
Tilsit
Konigsberg
Insterburg
Pr. Eylau
Elbing
Rastenburg
Lyck
Allenstein
Osterode
Flensburg
Heide
Plon
Cuxhaven
Itzehoe
Stralsund
Swinemunde
Stolp
Köslin
Güstrow
Neustettin
Aurich
Stade
Wondsbek
Hamburg
Schwerin
Ludwigslust
Neustrelitz
Stettin
Stargard
Dramburg
Oldenburg
Bremen
Lüneburg
Soltau
Templin
Schneidemühl
Verden
Ülzen
Kyritz
Eberswalde
Landsberg
Lingen
Nienburg
Celle
Stendal
Hannover
BERLIN
Meseritz
Osnabrück
Bad Oeynhausen
Bückeburg
Braunschweig
Potsdam
Frankfurt a. Oder
Hildesheim
Helmstedt
Hameln
Königswusterhausen
Munster
Bielefeld
Wolfenbüttel
Magdeburg
Krossen
Gandersheim
Cleve
Detmold
Goslar
Zerbst
Hamm
Holzminden
Halberstadt
Bernburg
Dessau
Wittenberg
Paderborn
Blankenburg
Cottbus
Neusalz a. Oder
Oberhausen
Bochum
Kamen
Soest
Northeim
Ballenstedt
Köthen
Essen
Schwerte
Eisleben
Krefeld
Hagen
Meschede
Kassel
Halle
Dusseldorf
Remscheid
Arolsen
Mühlhausen
Leipzig
Eschwege
Weissenfels
Meissen
Bautzen
Görlitz
Landeskröne
Liegnitz
Breslau
Köln
Aachen
Siegburg
Siegen
Marburg
Eisenach
Erfurt
Weimar
Dresden
Pirna
Zittau
Hirschberg
Brieg
Gotha
Bonn
Dillenburg
Hersfeld
Stadtroda
Gera
Chemnitz
Freiberg
Reichenbach
Oppeln
Giessen
Montabaur
Vallendar
Weilburg
Fulda
Saalfeld
Zwickau
Meiningen
Annaberg
Schleiz
Mayen
Limburg
Koblenz
Diez
Prünn
Plauen
Glatz
Gleiwitz
Idstein
Kochem
Hanau
Wiesbaden
Kronach
Frankfurt a. Main
Mainz
Aschaffenburg
Schweinfurt
Ratibor
Trier
Kreuznach
Darmstadt
Bamberg
Bayreuth
Würzburg
Kusel
Tauberbischofsheim
Frankenthal
Weiden
Kaiserslautern
Heidelberg
Limbach
Nürnberg
Amberg
Saarbrücken
Speyer
Mosbach
Künzelsau
Ansbach
Heilbronn
Hall
Hilpolstein
Karlsruhe
Ellwangen
Regensburg
Ludwigshurg
Kipfenberg
Sinzheim
Pforzheim
Cannstatt
Straubing
Gmünd
Achern
Calw
Stuttgart
Ingolstadt
Deggendorf
Geisenfeld
Offenburg
Reutlingen
Landshut
Passau
Ulm
Oberndorf
Neuulm
Augsburg
Ehingen
Rottweil
Biberach
München
Freiburg
Donaueschingen
Sigmaringen
Bonndorf
Ravensburg
Rosenheim
Überlingen
Traunstein
Lörrach
Waldshut
Kempten
Weilheim
Konstanz

GERMANY

PRINCIPAL ROAD CONSTRUCTION OFFICES

☐	REICHSAUTOBAHNEN MAIN CONSTRUCTION OFFICE (1941)
○	REICHSAUTOBAHNEN FIELD CONSTRUCTION OFFICE (1941)
▲	STATE OR PROVINCIAL CONSTRUCTION OFFICE (1939)

Any Combination of Symbols Represents Multiple Offices

—·— INTERNATIONAL BOUNDARY (1937)

0
100
200
MILES
0
100
200
KILOMETERS

NO. 3167
13 APRIL 1944

COMPILED AND DRAWN IN THE BRANCH OF RESEARCH AND ANALYSIS, OSS
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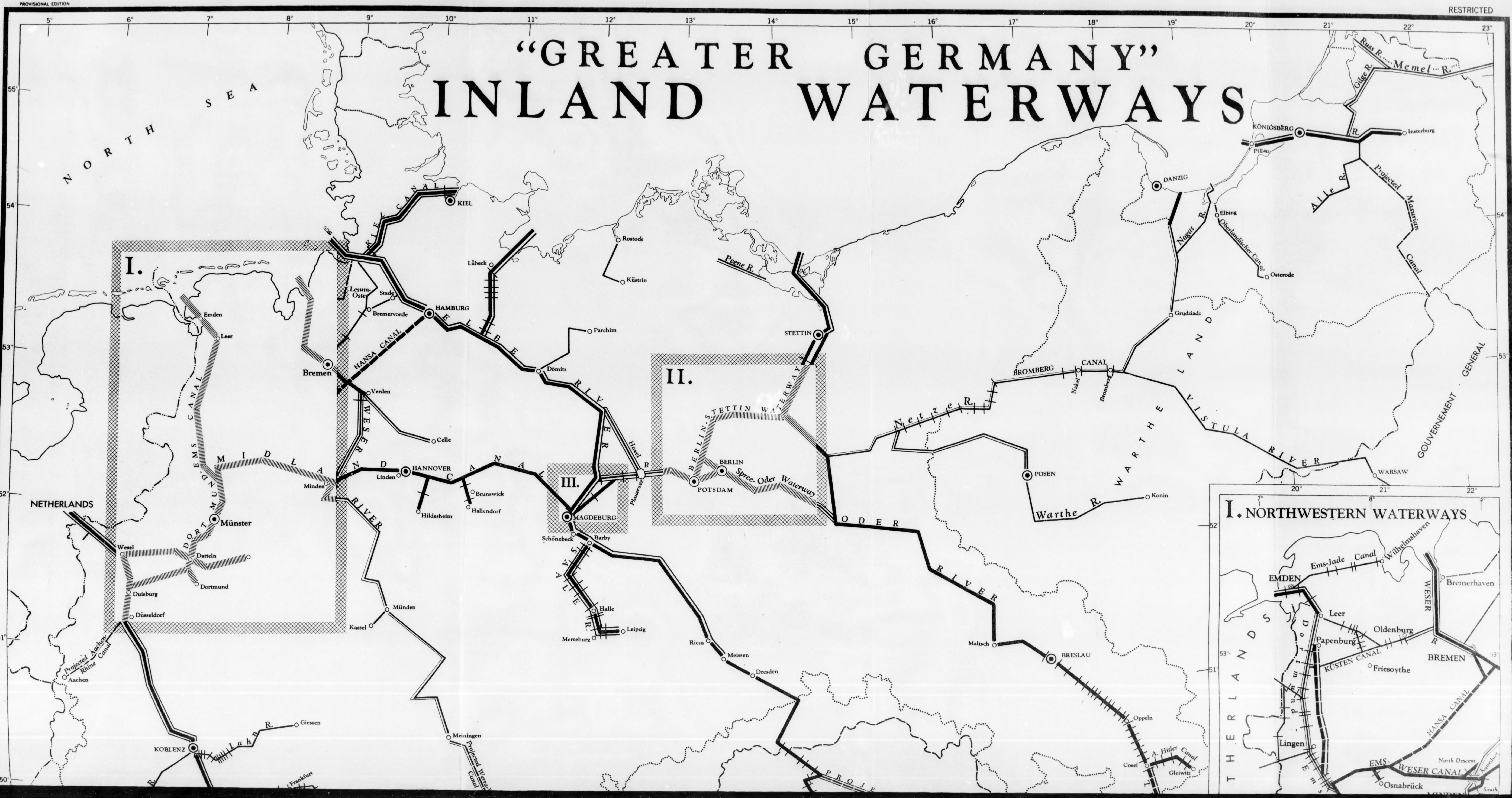
PROVISIONAL EDITION

RESTRICTED

"GREATER GERMANY" INLAND WATERWAYS



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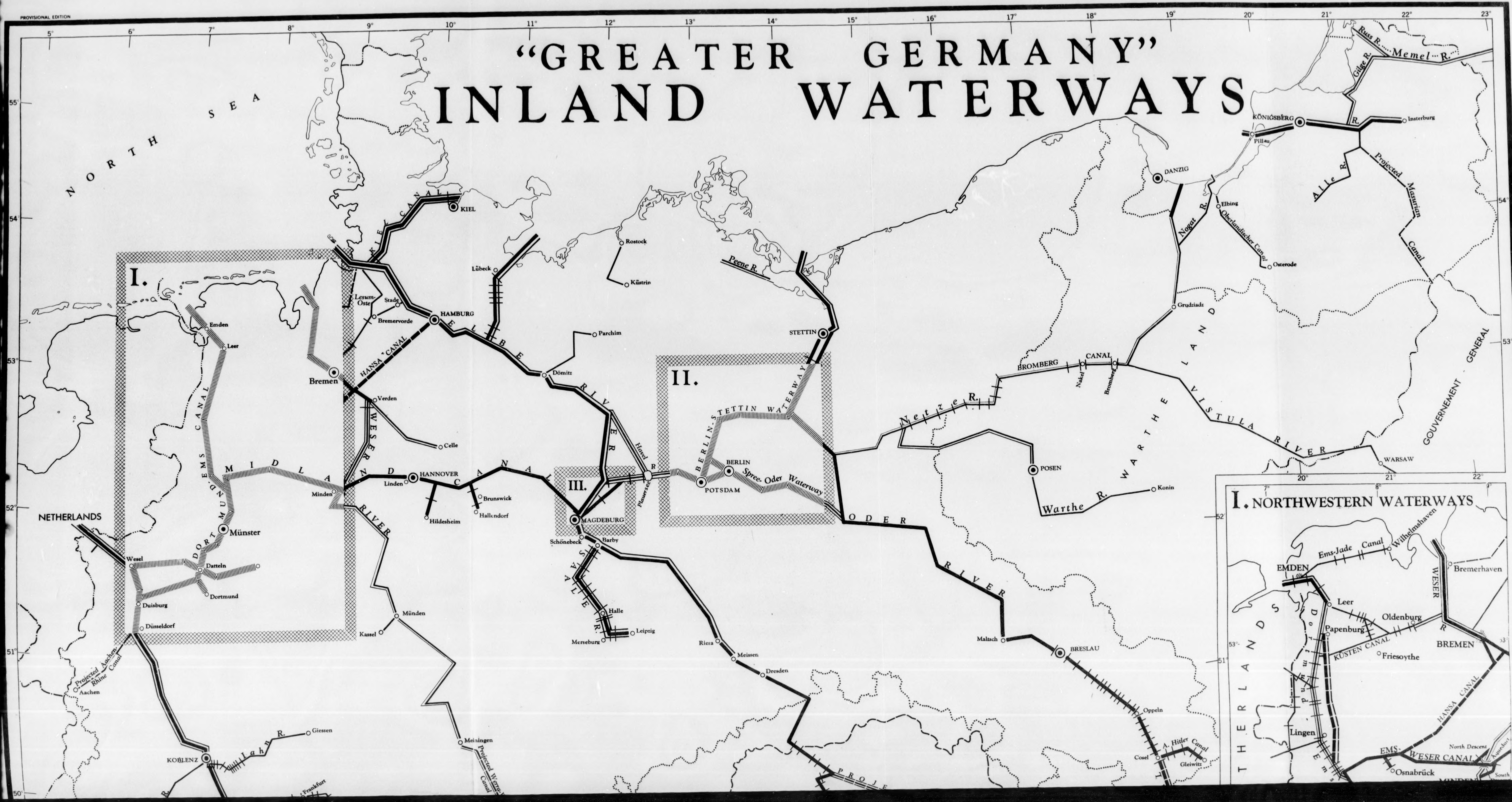
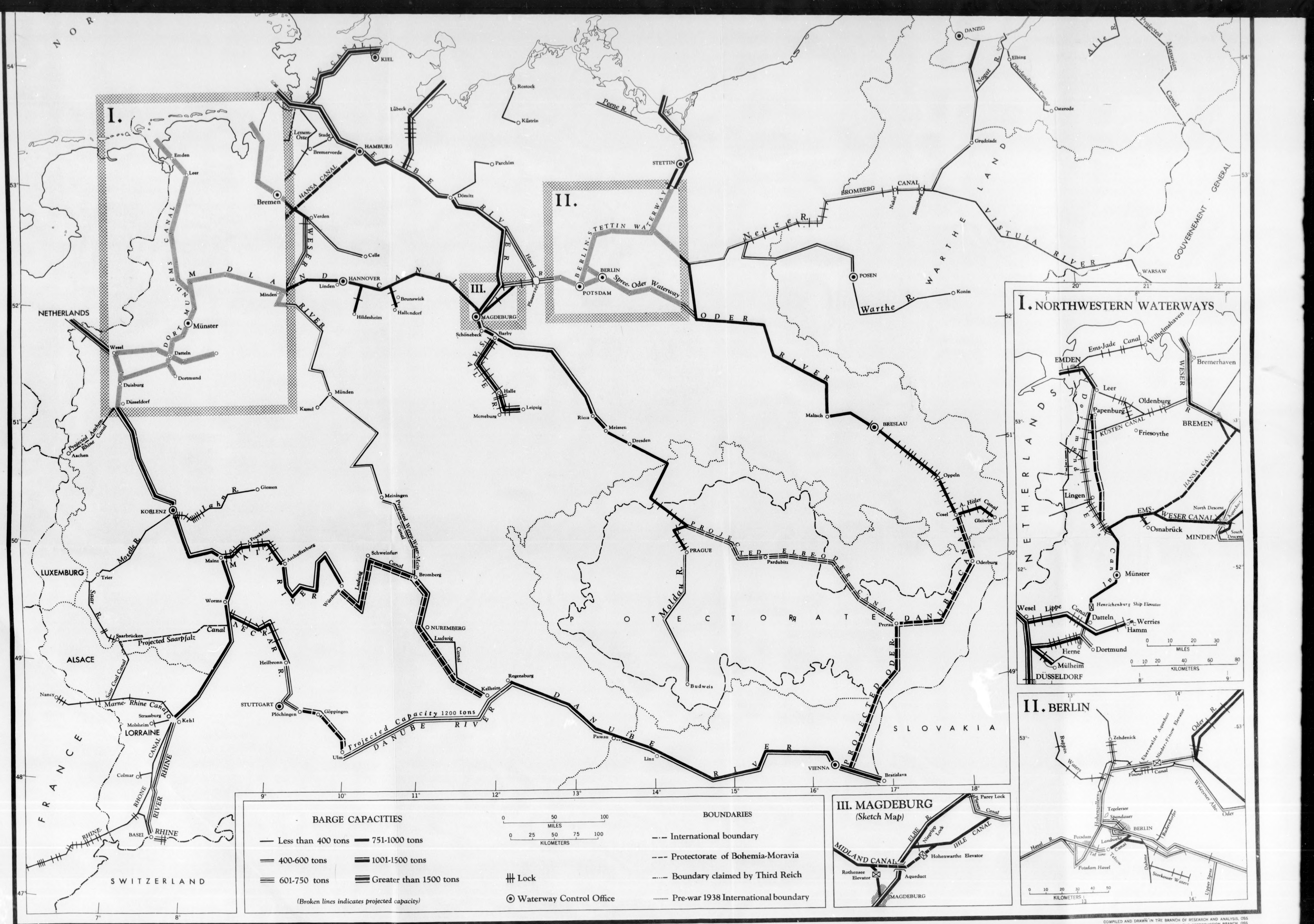
NORTH SEA
KIEL CANAL
KIEL
Lübeck
Rostock
Küstrin
Peene R.
Lesum-Oste
Stade
Bremervorde
HAMBURG
HANSA CANAL
ELBE RIVER
Dömitz
Parchim
STETTIN
DANZIG
KÖNIGSBERG
Pillau
Insterburg
Russ R.
Memel R.
Gilge R.
Alle R.
Projected Masurian Canal
Elbing
Oberländischer Canal
Osterode
Nogat R.
Grudziadz
BROMBERG CANAL
Nakel
Bromberg
Netze R.
WARTHE LAND
VISTULA RIVER
GOUVERNEMENT GENERAL
WARSAW
POSEN
Warthe R.
Konin
I.
Emden
Leer
Bremen
Verden
Celle
DORTMUND EMS CANAL
MIDLAND CANAL
Minden
Linden
HANNOVER
Brunswick
Hildesheim
Hallendorf
WESER RIVER
NETHERLANDS
Münster
Wesel
Datteln
Dortmund
Duisburg
Düsseldorf
Projected Aachen-Rhine Canal
Aachen
Münden
Kassel
Meiningen
Projected Werra Canal
KOBLENZ
Lahn R.
Giessen
Frankfurt
II.
BERLIN-STETTIN WATERWAY
BERLIN
POTSDAM
Spree-Oder Waterway
Havel
Plauersee
III.
MAGDEBURG
Schönebeck
Barby
SAALE R.
Halle
Leipzig
Merseburg
Riesa
Meissen
Dresden
PROJE
ODER RIVER
Maltsch
BRESLAU
Oppeln
Cosel
A. Hitler Canal
Gleiwitz
I. NORTHWESTERN WATERWAYS
Ems-Jade Canal
Wilhelmshaven
EMDEN
Leer
Papenburg
Oldenburg
KÜSTEN CANAL
Friesoythe
BREMEN
Bremerhaven
WESER
NETHERLANDS
Dortmund Ems
Lingen
HANSA CANAL
EMS-WESER CANAL
Osnabrück
North Descent
South
MINDEN

RESTRICTED

PROVISIONAL EDITION

"GREATER GERMANY"
INLAND WATERWAYS


NORTH SEA
NETHERLANDS
I.
II.
III.
KIEL
KIEL CANAL
Lübeck
Rostock
Küstrin
Peene R.
STETTIN
DANZIG
KÖNIGSBERG
Pillau
Insterburg
Russ R.
Memel R.
Gilge R.
Alle R.
Projected Masurian Canal
Nogat R.
Elbing
Oberländischer Canal
Osterode
Grudziadz
BROMBERG CANAL
Nakel
Bromberg
Netze R.
WARTHE LAND
VISTULA RIVER
WARSAW
GOUVERNEMENT GENERAL
POSEN
Warthe R.
Konin
Lesum-Oste
Stade
Bremervorde
HAMBURG
HANSA CANAL
ELBE RIVER
Parchim
Dömitz
Bremen
Verden
Celle
WESER RIVER
Emden
Leer
EMS CANAL
DORTMUND
MIDLAND CANAL
Minden
Linden
HANNOVER
Hildesheim
Brunswick
Hallendorf
Havel R.
Plauesee
BERLIN-STETTIN WATERWAY
BERLIN
POTSDAM
Spree-Oder Waterway
MAGDEBURG
Schönebeck
Barby
SAALE R.
Halle
Leipzig
Merseburg
Münster
Wesel
Datteln
Dortmund
Duisburg
Düsseldorf
Projected Aachen-Rhine Canal
Aachen
Münden
Kassel
Meiningen
Projected Werra Canal
Riesa
Meissen
Dresden
ODER RIVER
Maltsch
BRESLAU
Oppeln
Cosel
A. Hitler Canal
Gleiwitz
KOBLENZ
Lahn R.
Giessen
Frankfurt
PROJE
5° 6° 7° 8° 9° 10° 11° 12° 13° 14° 15° 16° 17° 18° 19° 20° 21° 22° 23°
55° 54° 53° 52° 51° 50°
I. NORTHWESTERN WATERWAYS
EMDEN
Ems-Jade Canal
Wilhelmshaven
Bremerhaven
WESER R.
Leer
Oldenburg
Papenburg
KÜSTEN CANAL
Friesoythe
BREMEN
Dortmund Ems
Lingen
HANSA CANAL
EMS-WESER CANAL
Osnabrück
North Descent
South
MINDEN
NETHERLANDS
7° 8° 9° 20° 21° 22°
52 53 51


I. NORTHWESTERN WATERWAYS
II. BERLIN
III. MAGDEBURG
(Sketch Map)
BARGE CAPACITIES
Less than 400 tons
400-600 tons
601-750 tons
751-1000 tons
1001-1500 tons
Greater than 1500 tons
(Broken lines indicates projected capacity)
MILES
KILOMETERS
Lock
Waterway Control Office
BOUNDARIES
International boundary
Protectorate of Bohemia-Moravia
Boundary claimed by Third Reich
Pre-war 1938 International boundary
KIEL CANAL
HAMBURG
ELBE RIVER
HANSA CANAL
Bremen
WESER RIVER
MIDLAND CANAL
DORTMUND EMS CANAL
Münster
NETHERLANDS
Wesel
Duisburg
Düsseldorf
HANNOVER
MAGDEBURG
BERLIN-STETTIN WATERWAY
STETTIN
BERLIN
POTSDAM
Spree-Oder Waterway
ODER RIVER
BRESLAU
Oppeln
A. Hitler Canal
Gleiwitz
Cosel
Oderburg
BROMBERG CANAL
Netze R.
POSEN
Warthe R.
VISTULA RIVER
WARSAW
GOUVERNEMENT GENERAL
DANZIG
Nogat R.
Projected Masurian Canal
Saale R.
Halle
Leipzig
Dresden
PRAGUE
Moldau R.
PROJECTED ELBE-ODER CANAL
PROTECTORATE
PROJECTED ODER-DANUBE CANAL
VIENNA
Bratislava
SLOVAKIA
DANUBE RIVER
Regensburg
Kelheim
Passau
Linz
Ulm
Projected Capacity 1200 tons
NUREMBERG
Ludwig Canal
MAIN RIVER
Frankfurt
Aschaffenburg
Würzburg
Schweinfurt
Bamberg
Projected Werra-Weser-Main Canal
Meiningen
Münden
Kassel
NECKAR R.
Heilbronn
STUTTGART
Plöchingen
Göppingen
Mainz
Worms
KOBLENZ
Lahn R.
Giessen
Moselle R.
Trier
LUXEMBURG
Saar R.
Saarbrücken
Projected Saarpfalz Canal
Saar Coal Canal
ALSACE
LORRAINE
Nancy
Marne-Rhine Canal
Strassburg
Kehl
RHINE-RHONE CANAL
RHINE RIVER
Colmar
BASEL
SWITZERLAND
FRANCE
Projected Aachen-Rhine Canal
Aachen
Ems-Jade Canal
Wilhelmshaven
Bremerhaven
EMDEN
Leer
Papenburg
Oldenburg
KÜSTEN CANAL
Friesoythe
Lingen
EMS-WESER CANAL
Osnabrück
MINDEN
Henrichenburg Ship Elevator
Datteln
Werries
Hamm
Dortmund
Herne
Mülheim
DÜSSELDORF
Zehdenick
Oder R.
Finow Canal
BERLIN
Spandau
Teltow Canal
Havel R.
Upper Spree
Storkower Waters
MIDLAND CANAL
IHLE CANAL
Hohenwarthe Elevator
Rothensee Elevator
Aqueduct
Parey Lock

MAP NO. 1994
25 AUGUST 1943

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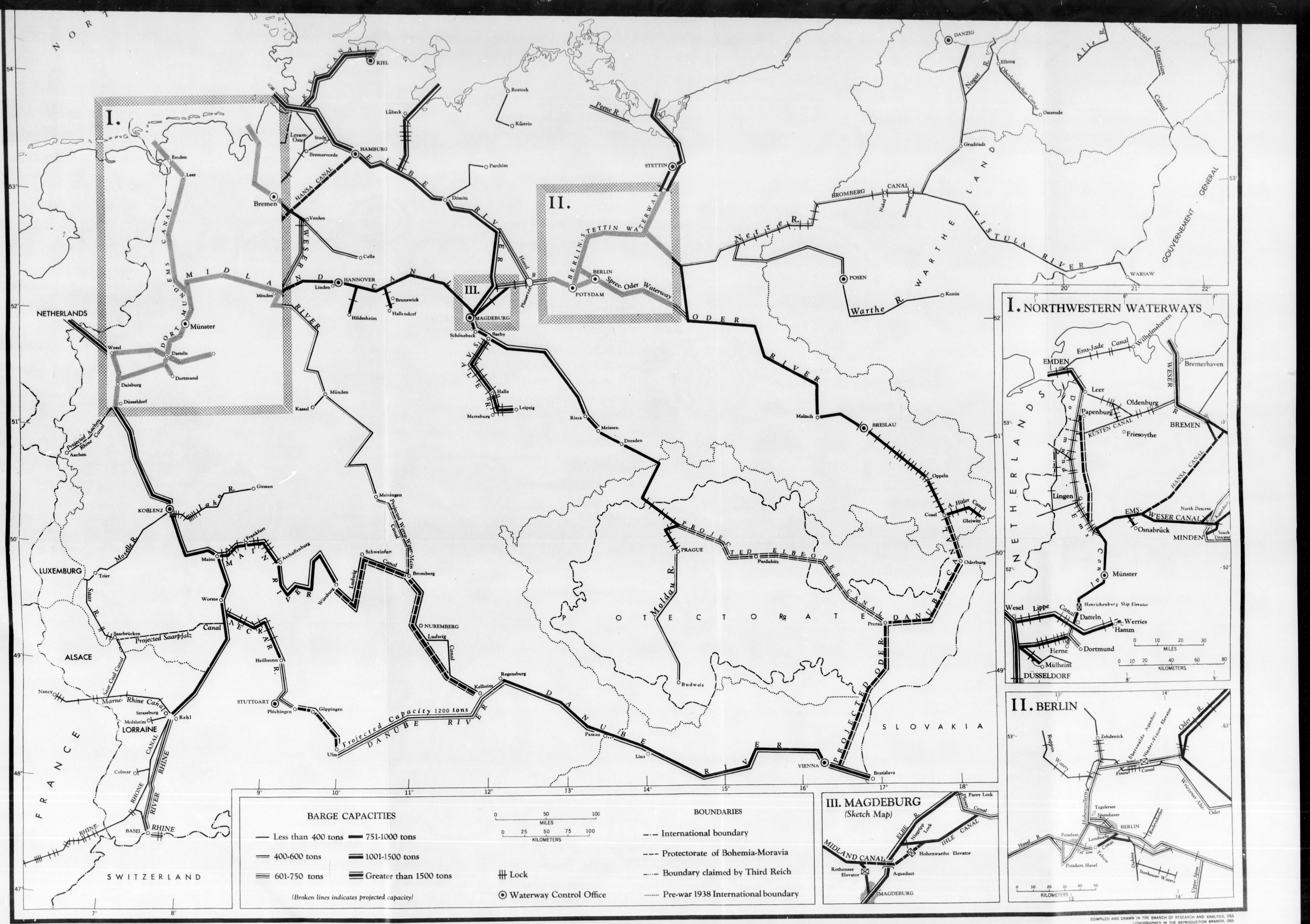
LITHOGRAPHED IN THE REPRODUCTION BRANCH, OSS


I.
II.
III.
NETHERLANDS
LUXEMBURG
ALSACE
LORRAINE
FRANCE
SWITZERLAND
SLOVAKIA
GOUVERNEMENT - GENERAL
PROTECTORATE
KIEL CANAL
KIEL
Lübeck
Rostock
Küstrin
Hamburg
Stade
Lesum-Oste
Bremervorde
HANSA CANAL
Bremen
Emden
Leer
DORTMUND-EMS CANAL
MIDLAND CANAL
Münster
Datteln
Dortmund
Wesel
Duisburg
Düsseldorf
Verden
Celle
WESER RIVER
Minden
Linden
HANNOVER
Hildesheim
Brunswick
Hallendorf
ELBE RIVER
Dömitz
Parchim
Havel R.
Plauer Canal
MAGDEBURG
Schönebeck
Barby
SAALE R.
Halle
Leipzig
Merseburg
BERLIN-STETTIN WATERWAY
BERLIN
POTSDAM
Spree-Oder Waterway
STETTIN
Peene R.
ODER RIVER
Maltsch
BRESLAU
Oppeln
Cosel
A. Hitler Canal
Gleiwitz
Oderburg
Prerau
DANUBE-ODER CANAL
PROJECTED ODER-DANUBE CANAL
Bratislava
VIENNA
DANUBE RIVER
Linz
Passau
Regensburg
Kelheim
Ludwig Canal
NUREMBERG
Bromberg
Schweinfurt
Ludwig Canal
Würzburg
Aschaffenburg
Frankfurt
MAIN RIVER
Mainz
Worms
NECKAR R.
Heilbronn
STUTTGART
Plöchingen
Göppingen
Ulm
Projected Capacity 1200 tons
Projected Werra-Main Canal
Meiningen
Münden
Kassel
Riesa
Meissen
Dresden
PROJECTED ELBE-ODER CANAL
Pardubitz
PRAGUE
Moldau R.
Budweis
KOBLENZ
Lahn R.
Giessen
Moselle R.
Trier
Saar R.
Saarbrücken
Projected Saarpfalz Canal
Saar Coal Canal
Nancy
Marne-Rhine Canal
Strassburg
Molsheim
Kehl
RHINE-RHONE CANAL
Colmar
RHINE RIVER
BASEL
RHINE
Projected Aachen-Rhine Canal
Aachen
DANZIG
Elbing
Oberländischer Canal
Osterode
Nogat R.
Grudziadz
Alle R.
Projected Masurian Canal
BROMBERG CANAL
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Bromberg
Netze R.
VISTULA RIVER
WARSAW
POSEN
WARTHE LAND
Warthe R.
Konin
I. NORTHWESTERN WATERWAYS
Ems-Jade Canal
Wilhelmshaven
Bremerhaven
EMDEN
Leer
Oldenburg
Papenburg
KÜSTEN CANAL
Friesoythe
BREMEN
Lingen
HANSA CANAL
EMS-WESER CANAL
Osnabrück
North Descent
South Descent
MINDEN
Münster
Henrichenburg Ship Elevator
Wesel
Lippe Canal
Datteln
Werries
Hamm
Herne
Dortmund
Mülheim
DÜSSELDORF
NETHERLANDS
MILES
KILOMETERS
II. BERLIN
Zehdenick
Ruppin Waters
Eberswalde Aqueduct
Nieder-Finow Elevator
Finow Canal
Oder R.
Wriezener Alte Oder
Tegelersee
Spandauer
Hohenzollern
BERLIN
Potsdam
Havel R.
Teltow Canal
Landwehr
Rüdersdorfer
Dahme
Storkower Waters
Upper Spree
Potsdam Havel
III. MAGDEBURG (Sketch Map)
Parey Lock
Plaue Canal
ELBE R.
Niegripp Lock
IHLE CANAL
Hohenwarthe Elevator
MIDLAND CANAL
Rothensee Elevator
Aqueduct
MAGDEBURG
BARGE CAPACITIES
Less than 400 tons
400-600 tons
601-750 tons
751-1000 tons
1001-1500 tons
Greater than 1500 tons
(Broken lines indicates projected capacity)
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KILOMETERS
Lock
Waterway Control Office
BOUNDARIES
International boundary
Protectorate of Bohemia-Moravia
Boundary claimed by Third Reich
Pre-war 1938 International boundary

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25 AUGUST 1943

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